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THE UTERUS*

WHY VAGINOFIXATION, VENTROFIXATION AND VENTROSUSPENSION THEREOF SHOULD BE AVOIDED IN CASES THAT RETAIN ANY CAPACITY FOR CONCEPTION.

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CHICAGO.

1. They are "unnatural, unsurgical and unscientific." The aggregate normal effect of the healthy and properly developed supports, attachments and guy-ropes of the uterus is to hold it in a state of stable equilibrium, in a sufficient degree of anteversion to secure the supporting aggregate impact of intra-abdominal pressure upon its posterior surface. This, the greatest of all forces in the abdomen and pelvis, then maintains that forward obliquity of the body and fundus of the uterus which experience has abundantly demonstrated to be not merely essential, as a rule, to maintain a normal balance in its circulation and in that of the adnexæ, but also to be the most benign safeguard against descensus of the uterus or ovaries, or both. While the entire organ has a considerable but very variable degree of mobility in all direction, its principal portion—the body—has a very large range of normal mobility, like an inverted pendulum in an anteroposterior direction. This wide range of motion of its body, which is so necessary in view of the bladder, and its general freedom to expand and contract, and to rise untrammeled in pregnancy from the pelvis into the abdomen, are secured chiefly by the total absence of all connections or attachments to its vertex and its anterior or posterior surfaces. Therefore, the thought of opening the abdomen from any direction and inflicting fixations upon any one of these surfaces which are destined to be free, and thereby limiting the normal mobility or expansibility of the body of the uterus in some degree, is repugnant to every rational instinct; especially as it is done or proposed for conditions that are never serious, that may cause an *indicatio quod valetudinem* but never *quod vitam*. These operations effect at best a substitution of one abnormal condition for another. They are a loan from the domain of pathology, that we need to make exceptionally when the proper supports of the uterus are very seriously deranged or defective, as in those cases of marked descensus uteri in which hysterectomy seems still more objectionable or less effective. Pronounced cases of the so-called prolapse of the uterus, especially those of the genuine type in which there is not merely an elongation of the supravaginal cervix, but an actual descent of the entire uterus, are not radically curable by any kind or degree of plastic procedures upon cervix, vagina and perineum, singly or combined; but they require either a shortening of the broad and sacrouterine ligaments or some ventral fixation of the uterus as a supplementary act to the plastiques upon the pelvic floor. But, fortunately, these cases are mostly beyond the period of their life in which pregnancy is possible or probable, and if they are not, they should be sterilized, at the time of the operation, by removal of the Fallopian tubes alone, which should be exsected from the uterus and the resulting wounds sewed up. Otherwise a cure of such marked cases of descensus should not be attempted by the help of an auxiliary ventrofixation, if attempted at all.

2. The essential features in the technic of these operations that give them any stability in good results that they may or are intended to do are in every detail directly antagonistic to the interests of the uterus in gestation and labor. There is no parallelism of functions here. Any choice of technic that is intended to avoid serious complications in labor correspondingly sacrifices the certainty or durability of the principal purposes of the operation; and vice versa. So, in ventrofixation, in order to avoid obstetric complications, the point of fixation on the uterus dare not be taken upon its posterior surface nor upon its vertex, but as low down upon its anterior surface as is likely to do any holding. The point of attachment to the abdominal wall should not be taken low down, so as to enable the uterus to rise into the abdomen in gestation; and to permit the deeper muscular strata in the uterine wall to slide by the fixed point caught in the ligatures[2] in gestation, these should be passed as superficially in the uterine wall as is likely to do any good, while, on the other hand, if a complete and lasting result in holding the displaced organs in an improved position—not to speak of a perfect one—is the aim of the operator, he must of necessity do very differently and in an opposite direction in each of these features. He cannot serve both masters in the same act.

Thus, vesicofixation alone, or intraperitoneal vaginofixation—making serososerous junctions—do not interfere with labor; but, pregnancy and labor also uniformly destroy the fixations. On the other hand, extraperitoneal vaginofixation—creating a serosofibrous or fibrofibrous junction—holds the uterus as a rule, but it also, quite as certainly, presents obstacles to gestation and labor which are so serious that this operation has already been practically discarded. What is true of this operation is also true, to a milder degree, of the direct and firm fixation of the fundus uteri to the abdominal wall by a serosofibrous or by a fibrofibrous junction, without any intervening band—the ventrofixation of Leopold[3] and Czerny[4]. This operation is of real service for some cases of extreme descensus uteri, as before mentioned, and in other rare and extreme conditions with which the round ligaments can not be made to cope successfully, and it is permissible then, because sterility either exists or it is readily accepted and secured at the same time.

*Presented to the Section on Obstetrics and Diseases of Women, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

But as examples of the obstetric complications that it has otherwise induced, the following should be kept in memory: Out of Milander's[5] collection of 54 cases of pregnancy and labor after this operation, 11 cases, or 20 per cent., required severe operative delivery; 7 in Noble's American collection of 43 cases, or 16.25 per cent. and 18 in Noble's[6] foreign collection of 133 cases, 13.5 per cent. W. A. N. Dorland[7] collected 179 cases of pregnancy following this operation, in which 111—62.01 per cent., or nearly two-thirds of the whole number—experience some uncommon abnormality in gestation or in labor, or in both; and in 37.99 per cent. of the cases these disturbances occurred as complications of labor, which are more serious. Disorders during gestation that are recorded are, among others, excessive vomiting, abortions, interference with the bladder and many traction pains so severe as to make the recumbent posture necessary, or to require the induction of premature labor. Leaving aside the disasters following extraperitoneal vaginofixation as an obsolete operation, the following are some of the serious or fatal complications of parturition after ventrofixation alone: Gubaroff[9], Veldi[10], Mackenrodt[11], Norris [12], C. P. Noble[13], Michaelis [14], Krim[15] and Guerard[16], Strassman[17], Gottschalk[18], Olshausen[19] and Edebohls[20], each report one case, while Bidone[21] publishes four instances in three patients out of six total cases of pregnancy following ventrofixation. This operator advises an abdominal section for the removal of the fixation two months before term, in every case of this kind. In all these cases together four Cesarean sections were made and were followed by recovery; and two Porro operations ended fatally, and in the remaining cases other severe and uncommon operative aid was required.

It is true that these obstetric disasters are usually avoided by a mediate fixation—the so-called ventrosuspension, in which the uterus becomes hitched to the abdominal wall by one or more bands that allow it a variable degree of mobility. But what is gained in this direction is largely lost in another regard, from the imminent liability to intestinal obstruction and to the suffering of more frequent and unavoidable abdominal pains due to smaller interferences with the intestines that cling to all such unnatural and intruding bands, bridges or clefts, spanning from one viscus to another, or from any viscus to the abdominal parietes. Notwithstanding some nice names that are calculated to obscure their heinous nature, they are always pathologic, whether arising spontaneously from disease or from misdirected efforts of a surgeon. And the latter would usually regard an operation for their removal at some convenient time as proper, when such menacing bands have originated otherwise than by his voluntary act.

The reports of cases of ileus following at variable periods after ventrosuspension, have only begun to appear. But I have chanced to notice the following without any exhaustive search: Ruehl[22], Jacobs[23], Olshausen[24], and A. L. Smith[25] each publish a case; while Rufus B. Hall says he has dealt with three cases and thinks the operation of ventrosuspension has had its day. In a second abdominal section for severe disabling pain in the abdomen, on account of which the patient could not walk nor stand erect, Professor Fitsch[26] found the omentum so engaged between the uterus and bladder, after a former ventrofixation by Olshausen's method—attaching the uterus at its cornua or the origins of the round ligaments—that he had to reset a large portion of it.

Furthermore, Fihling's statistics show a mortality-rate of 5 per cent. after all these operations[27] (Steinthal[27]) and ventral hernia has followed these, as other abdominal sections, in the hands of many men, more frequently than that. And finally, the rate of recurrence of retroversion, etc., after this operation, is so high, when the operation has been carefully done so that it will not create serious obstetric complications, that no intelligent patient will accept it if the truth in regard to it is honestly stated by the doctor.

Again, everything about these so-called artificial ligaments is very uncertain and ungovernable, whether they be constructed by the use of the urachus, or a strip of parietal peritoneum sewed to the uterus or drawn through a slit on its surface, whether they be developed by the pulling out of an exclusively peritoneal parietal fixation of the fundus or of the cornua, or whether they be formed by sewing the round ligaments of the uterus into a median ventral incision or against or into the abdominal wall at points laterally from the median line, so that clefts or pockets for the omentum or intestines result. No operator knows with any reasonable certainty what will be the strength of his newly-made attachments for desirable service or for occult mischief; he does not know how soon nor how long they will pull out, nor how long these enemies to nature and its efforts will last. This entire matter is made ungovernable by the uncertain and incalculable degree of peritoneal reaction upon the sutures of any kind of material—as foreign bodies—and by the frequency of slight infections that nature overcomes readily enough, but does so by throwing out an amount of exudate and by forming a volume or depth of adhesions that were not bargained for by the operator. This fact has been repeatedly impressed upon me in doing second abdominal sections upon various cases. A striking one was a few weeks ago: In doing a vaginal hysterectomy only for a large metritic uterus and septic tubo-ovarian conglomerate and ovarian cyst of one side, I was surprised to find two short and very dense fibrous bands close together and nearly a centimeter in thickness, attached to the fundus and holding it high up against the upper vesical boundary. Nothing but actual cutting would sever them; and in case of pregnancy they would have done mischief certainly. These resulted, as my records show, from a mere auxiliary vesicofixation with finest silk and a round milliner's needle, that I had made two years previously to supplement an intra-abdominal shortening of both round ligaments for a retroverted metritic uterus, after curettage and removal of adnexæ of one side, while at that time I could not expect that more than a slight serososerous union would result, that would not embarrass any uterine function.

3. But another most commanding reason why these *dernier* operative resorts to things pathologic in gynecologic surgery are not only not necessary but out of order in all possibly fruitful females is, that there are other surgical expedients quite generally available, that are entirely within the domain of normal anatomy and physiology, that help nature and are assisted by nature because they exercise a parallelism and no antagonism of forces. The only normal structures that exist and can be consistently made use of upon this declaration of principles, for the purpose here intended, are the round ligaments of the uterus. They are the only things that, as a part of the uterus, keep pace with it in its physiologic changes and migrations. They grow with it approximately in thickness and length during gestation. They participate with it in involution after parturition. They may be dealt with: 1, by median ventral celio-

tomy; 2, by anterior median, vaginal celiotomy, and 3, by way of the inguinal canals. By the first route they can be shortened or can be made to hold the uterus, anteverted only by intra-abdominal methods which consist exclusively of looping them upon themselves or upon each other, or upon the anterior or posterior surface of the uterus; and this is only possible by means of sutures that are in danger of cutting off the circulation partly on the one hand and of cutting out on the other; so that the extent and permanency of the desired adhesions that are necessary to maintain the loops or other transformations in the ligaments is uncertain; and they do not stand the test of pregnancy and labor, although they do not present any obstacles to these functions. Substantially the same intra-abdominal shortening of the round ligaments can be made by the vaginal route with a good result, in the absence of pregnancy, especially when supplemented with a serososerous vesicofixation. Furthermore, vaginal fixation of the round ligaments is ideally a creditable procedure and is recommended by several good gynecologists—Bode, Werthheim and others. I have no experience with it. But all these operations either do positively not stand the test of normal child-birth or they have a great burden of proof yet to bring that they can stand it. Far better are the results from shortening the round ligaments by way of their natural channels—the inguinal canals. Here no dependence is placed upon light suturing or slight adhesions. The ligaments are not distorted, and no sutures or plastic junctions of any kind are needed within the peritoneal cavity, as in shortening these ligaments by every other possible route. On the other hand, the strong central half of the ligaments alone is made use of, additionally reinforced by a strip of firmly attached peritoneum, and untrammeled by any kinks or sutures. Thus alone can they be expected—and in this manner alone have they been proven—to fulfill their ideal function, i. e., to grow, pari passu, with the uterus in gestation, to become involuted with it in the puerperal period and to guide and guard it in anteversion thereafter.

The original Alexander operation greatly modified and improved is the only operation practiced or proposed that not only does not borrow from things pathologic and antagonistic to nature—as do all ventral attachments—and does not create obstacles to gestation or labor, but also guarantees against a return of the retroversion afterward, provided that the operation is properly performed. And this means a very much greater conception as to its technic and requirements than was entertained by Alexander himself, or is entertained now by those who speak of one-inch incision, of not laying open the inguinal canal, of not opening the peritoneal cavity and similar puerile vagaries. This, the modern procedure, which resembles that of Bassini for hernia far more than it does the operation introduced by Alexander, is the only operation that has been proven, or is likely to be proven, to stand the crucial test of pregnancy and labor. All others, according to all evidence so far available, either create obstacles to these functions, or the good that they did or were intended to do is ended by their supervention.

And when this modern Alexander is combined with inguinal celiotomy* by way of the temporarily dilated internal inguinal ring, for the severing of adhesions, for the resection or removal of diseased appendages and for the permanent restoration of descended ovaries to their normal locations, it most nearly fulfills the highest ideals now entertained.

This combination originated with the writer accidentally and was executed by him completely for the first time, Sept. 18, 1893, when he removed a diseased tube and ovary via the left internal inguinal ring, in the course of an Alexander operation. From Jan. 1, 1897, to May 29, 1899, inclusive, I performed these combined operations, called by me the "Improved and Extended Alexander Operation," sixty-five times; twelve times with simple digital exploration, or examination or freeing of the adnexæ of both sides, which I never omit; 19 times with resection of one ovary; 13 times with removal of one ovary and tube; once with removal of both ovaries and tubes that were unexpectedly found to be tubercular, very adherent and moderately distended, with cheesy pus; 11 times with removal of tube and ovary of one side and resection of the other ovary. Seventeen times a descended ovary was suspended by shortening its proper lateral suspensory ligament, and in five or six cases salpingostomy was done. One of the simple cases was pregnant two and one-half months, and the uterus remains now in normal position, some four months after a normal labor.

In one instance a tubal pregnancy, which was just beginning to rupture, was removed with the tube entire, and the ovary—the only one—left in. Although I have always done one or more other operations—such as curettement, Schroeder cervix operation, colporrhaphy or perineorrhaphy—in conjunction with this extended Alexander, in every case except the pregnant one I can join a number of other operators in declaring that even this extended Alexander operation, in careful and competent hands, has practically no mortality; for after a total number of over 170 cases of all Alexander operations—old and new—I have yet to experience the first death. And the results in the last 100 cases, in most of which not merely the retroversion but also the other half of the indications, i. e., that pertaining to the appendages, was attended to, are so satisfactory that they distinctly emphasize the importance of the extension feature of the operation. And by cutting nothing but skin and fat and severing all the other structures—all the supporting ones—bluntly by splitting, in making the wound; and by following the principles and technic of the Bassini hernia operation always in closing it, we not only avoid the supervention of hernia, but incidentally cure a number of inguinal herniæ that are impending or are fully developed.

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* For the technic of this combined operation, named by me the "improved and extended Alexander operation," see American Gynecological and Obstetrical Journal, February, 1898; Medical Record, Oct. 8, 1898; and American Journal of Surgery and Gynecology, November, 1898.

UTERINE RETRODISPLACEMENTS.*

A NEW OPERATION FOR THEIR CURE.

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KEOKUK, IOWA.

Had the older plans always been satisfactory, I should not present this one, hence no apology is required for obtruding yet another method upon you. It may probably be more properly called a new application of an old principle, and has for its object the replacing of the round ligaments or their temporary substitution by efficient means until they are again able to hold the uterus forward enough to entirely prevent retrodisplacement.

It is equally applicable to retroflection and version. It can be used almost equally well in the lean and obese. It requires little time, usually not more than five or ten minutes of intra-abdominal work. An incision is made at or near the median line above the pubes, the length of which depends upon the thickness of the abdominal walls, skill of the operator and the intra-abdominal and pelvic pathology and will usually not need to be more than two or three inches in length.

The uterus is brought forward and a large ordinary full curved needle, or, if the operator prefers, a needle may be used with the eye at the point, armed with a full-sized kangaroo tendon, which is passed under the peritoneum, directly across the anterior surface of the uterus, then along the interior of the round ligaments, or, when they are absent or practically so, the needle simply passes along the interior of the peritoneal fold which represents the course of the round ligament. When the abdominal ring is reached, the needle no longer follows the round ligament, but pierces the abdominal wall directly opposite the ring and emerges through the skin in contact with Poupart's ligament, near its middle on one or the other side.

The needle is now unthreaded, the end of the tendon split, say two inches, one half is again threaded into the needle and passes under Poupart's ligament to the opposite side of the same and the ends are next tied together over the ligament. This fastening of the end of the tendon to Poupart's ligament may be done through a small incision down to the ligament or subcutaneously, as the operator may desire. The other end is dealt with in like manner, enough tension being made to bring the uterus as far forward as may be desired and retain it in position. A little care is required to have the tension the same on each side, or the uterus will be drawn to one or the other side, as the large kangaroo tendon does not run readily for so great a distance. It will be noticed that the long round ligaments will thus be thrown into numerous folds and convolutions as it is taken up on the running thread.

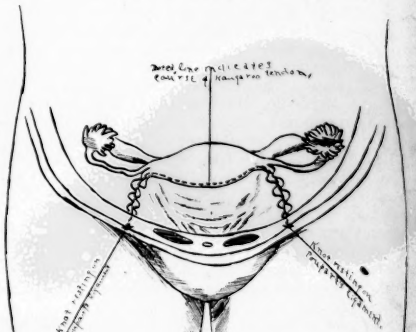
The life of this material is at least two months and if it were necessary it might probably be made longer. At the end of two months the tendon has practically disappeared and its place has been taken by exudation material which has become for the most part a strong fibrocicatricial cord which has little tendency to relax under any ordinary tension.

In January, 1899, I operated on Jennie M., aged 17 years, for retroflectio uteri. I first made the usual incision on the right side for an "Alexander's operation" and found no round ligament in the inguinal canal. As it was necessary to open the abdomen I concluded to open in the median line that I might the more readily deal with any ovarian or tubal pathology, should it exist. I found the abdominal portion of the round ligaments almost entirely absent, being represented by little more than folds of peritoneum, extending from the point of normal uterine attachment of the round ligaments to the abdominal rings.

As my patient was but 17 years old, with healthy ovaries and tubes, I did not feel justified in doing a ventrofixation or suspension, nor had I any confidence in the ordinary intra-abdominal methods of shortening the round ligaments, being long successful in ligaments so attenuated or rudimentary as these.

I was of opinion that I would obtain a better immediate and remote result in far less time by using the kangaroo tendon in the manner already referred to than by doing any of the ordinary intra-abdominal operations for shortening the round ligaments. Dr. T. J. Maxwell, professor of surgery in the Keokuk Medical College, was present at the time and noted the ease with which the uterus was brought and held forward to any desired position by means of the tendon, whose ends were fastened around the middle of Poupart's ligament.

The uterus was not absolutely or rigidly fixed, as one



might suppose, but yielded to the pressure upward and tension downward by virtue of the fact that the tendon did not pass in a straight line from one side to the other, but in a slightly irregular segment of a circle. Again a slight give was to be obtained from the attachment of the tendon ends to the middle of Poupart's ligament. A Hodge pessary was introduced and worn two months. On its removal the uterus remained in perfect position, or rather in the anteverted position in which it was placed at the time of operation.

Three and one-half months after the operation, the uterus is still in position, with no discomfort from it whatever, and no apparent tendency to relaxation of the round ligament supports. I am aware that one case is not enough to prove an operative procedure thoroughly, especially in three and one-half or four months' time, but it may teach us some things.

The following points may be said to be worthy of consideration:

1. It exposes no denuded traumatized surface to contract troublesome adhesions.

2. It does not permanently introduce any foreign material.

*Presented to the Section on Obstetrics and Diseases of Women, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

3. It enables the natural supports to take up the work successfully.

4. It gives the desired position of the uterus.

5. It leaves the uterus with ample mobility.

6. It does not interfere with the development of any part of the uterus in performing its normal physiologic functions.

7. It is as quickly done as any operation having for its object the accomplishment of the same ends, and can be done in much less time than some of them.

8. It gives every opportunity for dealing with any ovarian, Fallopian or uterine pathology, with but a single wound, for the abdominal wall is in no sense weakened, except at the central incision, as nothing is cut over Poupart's ligament except the skin and superficial fascia. The skin cuts may be entirely obviated by substituting the cutaneous incisions with needle punctures only.

DISCUSSION ON PAPERS OF DRS. GOLDSPOHN AND RUTH.

DR. THOMAS J. MAXWELL, Keokuk, Iowa.—I saw Dr. Ruth perform the operation he has described. He did it easily, and he has very well represented it. Of course, it was an experiment. I did not know how it would terminate at the time, but it seems to have ended successfully. The operation is not a difficult one to do. It is a little more complicated than a simple suspension of the uterus, but if it should prove successful by further operations, it will be a great advancement in the fixation or correction of this common condition of retroversion of the uterus.

DR. ALBERT GOLDSPOHN, Chicago.—I wish to say in a few words that the value of all operations for rectifying retroversion of the uterus should be determined by one crucial test, that is, they do not create complications in gestations or obstructions to labor; and, on the other hand, that their results will also not be wiped out when those physiologic phenomena supervene, and on that test I do not have much faith in the procedure described by Dr. Ruth. Furthermore, anything calculated to assist the contraction or growing strong of the round ligaments that is done outside of the post puerperal period is not likely to be successful. The only time when we can expect such a contraction of the round ligaments to take place is when involution is in progress in the uterus and the round ligaments. That time is limited to a couple of months after labor. And outside of that period, all surgical or mechanical measures that serve temporarily only, with the expectation that the round ligaments will contract because of the rest that is given them, are not successful; they will not be found to be successful in the end, when a large number of cases are observed for years; because the round ligaments will not usually become short and strong, permanently, at any other time, even if they be relieved of duty for a number of months.

DR. B. SHERWOOD-DUNN, Boston.—I recently operated on a case in which the uterus was fixed forward by the vaginal route, for disease of the ovaries, and I found a ligamentous band six inches in length. My personal experience has led me to adopt one of two courses in fastening the uterus forward, that is intra-abdominal shortening of the round ligaments by the Gill-Wylie method, or the Alexander operation to maintain the physiologic relations. It does not interfere with the physiologic performance of the duty of the round ligaments, and it does not give rise to the subsequent complications which the essayist has brought forward. I have followed Dr. Goldspohn's writings for years with great interest; he has devoted much time and attention to this subject, and I have gathered the impression in my own mind that there is no man in our profession in this country who has written more, or who has paid as much attention to this particular subject as the essayist, and I am glad to have heard his paper to-day.

DR. CHARLES E. PADDOCK, Chicago.—I wish to thank Dr. Goldspohn for his excellent paper. It is a great help to those who are giving obstetrics considerable attention. In my own practice I have encountered case after case of ventrofixation, and these operations must be looked upon as being only of temporary benefit. As a rule, many women abort after these operations, and they are left in a deplorable condition. These women go through pregnancy nervous wrecks; they suffer during their entire pregnancy. I have seen very few cases that went on to term after operations for ventrofixation of the uterus; many of the women have aborted. Intestinal obstruction is also a factor to be considered.

Intestinal obstruction is also a factor to be considered.

DR. WILLIAM H. HUMISTON, Cleveland, Ohio.—I was very much interested in the Alexander operation when it was first brought to the attention of the profession. I visited Alexander, saw him operate by his method, and I did many operations by his method after I returned home, and I find that in order to make a success of shortening the round ligaments you must have normal adnexæ. If you have not normal adnexæ and you have a retroversion of the uterus to deal with, the operation is not indicated. You can cure these cases, where you have a simple endometritis, by a curettement, placing the uterus well forward, with the woman in the knee-chest position, and supporting it with a pessary. It has been my experience that where we have diseased appendages, shortening of the round ligaments will do no good. I do not do ventrofixation unless there is a diseased condition of the appendages which will require their total removal on both sides, then I make it. But in the simple cases of retroversion of the uterus without diseased appendages, I have not failed to obtain a good result by an ordinary curettement, with replacement of the uterus and keeping it in position from six to twelve weeks.

DR. C. C. FREDERICK, Buffalo.—After having had considerable experience with ventrofixation, I have discarded it because I feared the results, from the experiences of other men; but in reply to Dr. Paddock, with reference to women aborting as the result of ventrofixation, I will say that I have had six cases of pregnancy out of seventy-five ventrofixations that I performed about five or six years ago, and none of them aborted; some were pregnant twice, and they went through labor without any pain or distress. Because some women have distress following ventrofixations it does not follow that all of them do. Some have difficult labors, others comparatively easy ones. I never do ventrofixation unless it be to suspend the uterus in a case of prolapse, or in a case where I have removed the tubes entirely and there is no chance of the woman becoming pregnant again, or in a case in which I remove both tubes and ovaries, or in a woman who has passed the menopause; I either do internal shortening of the round ligaments, or Gill-Wylie's, or Dudley's, or the Alexander operation as modified by Edebohls. I never did but two Alexander operations, and was not pleased with them. I have done seventy-five after the method spoken of by Dr. Goldspohn, all being successful with the exception of one, which recurred after a severe labor and a very hard pull.

DR. JAMES F. W. ROSS, Toronto, Ont.—I have some pronounced views on this subject, and I feel somewhat diffident in speaking on account of being a guest. However, I am pleased to have been called upon. I never do ventrofixation; it is an operation for which I have no use. It is anatomically and physiologically unsound, as Dr. Mann of Buffalo said years ago. The experience of Dr. Frederick may be well and good; but the statistics of Dr. Goldspohn convince me positively that my own views on the subject have been correct. A large number of cases have been brought forward in which difficulty in labor has been found as a consequence of this abnormal condition in which the uterus has been placed. The miscarriages that have been produced, and the intestinal obstruction which has followed in some cases show conclusively that if the Creator intended the uterus should have a ligament in that place he would have put it there. The Alexander operation has been too highly overrated, in my estimation, by Dr. Goldspohn. There are other well-known operators in the country who have given us decidedly adverse opinions regarding its benefits. A considerable number of cases have been reported in which the uterus has gone back again to its original condition; cases in which hernia has followed as a consequence of the operation, and cases in which it was impossible to find the ligaments. The only method that meets with any approval is the intraabdominal shortening of the round ligaments. Within the past year I have had one melancholy experience with it. I shortened the round ligaments intra-abdominally, and the patient during the act of vomiting tore a large rent in the left broad ligament. I was called out of town that afternoon, and did not return home until the next morning. I opened the abdomen and found it full of blood. A colleague operated on a woman in Pittsburg last year, I assisted him, and she bled to death the next day in consequence of a similar accident. I have fastened the uterus by ventrofixation in one or two cases for prolapse, but the next day the uterus was down between the legs. So the operation is of no service in those cases.

The gentleman who read the first paper gave us an admirable drawing, and I only hope his method may be of more service than those operations that have been fully described. I cannot understand why kangaroo tendon should not allow the uterus to come back after absorption has taken place; we have nothing left but a certain amount of cicatricial tissue, and we all know from our experience with abdominal hernia that after

the use of a drainage-tube, cicatricial tissue will stretch to a very great extent. Dr. Pancoast a few years ago showed a specimen before the Philadelphia County Medical Society, of a uterus with a ligament about two and a half inches long after a ventrofixation. If this adhesion is produced and the uterus allowed to have a ligament two and a half inches long it is bound to go back and rest in its original place over the sacrum and sacrum nerves, and again produce pain. Many women can be treated by the old-time methods, and their condition can be improved, and I consider many of the young girls operated on need no operation at all. Their symptoms are not due to flexion of the uterus, because there are many women going around with retroflexion of the uterus, unmarried women, who suffer nothing whatever, and show no symptoms of the condition. If they become nervous and hysterical and neurasthenic, and we examine the uterus and find it is turned backward, we are apt to jump to the conclusion that it is the flexion of the uterus which is producing the trouble. A number of cases require no operation, and the ideal operation has not yet, in my opinion, been reached.

DR. JOSEPH EASTMAN, Indianapolis.—For the past five or six years I have been pleased in operating upon cases of prolapse of the uterus, retroverted uteri. etc., by the Mackenrodt operation, opening up through the anterior cul-de-sac into the peritoneal cavity, bringing the uterus forward, stitching it firmly, going well up toward the urethra, using the uterus as a splint at the anterior vaginal wall, thus overcoming the chronic spasms and distress which are an annoyance to women who have passed the menopause, adding to this a complete Emmet's operation upon the perineum, and I have succeeded in relieving a larger number of women than I have in those cases where I have made complete extirpation of the uterus by the vagina. While this operation is objectionable in case pregnancy should take place, by changing the axis of the uterus, the operation of Mackenrodt has given satisfaction in cases where there is a possibility of pregnancy occurring.

DR. RUFUS B. HALL, Cincinnati.—I was not here in time to hear all the paper of the essayist, but with reference to ventrofixation, I can recall a number of cases operated upon by myself, where the operation was not made for retroversion, but for disease of the adnexæ on one side, a tumor, or what not, with, at the same time, possibly a retroverted uterus. For a number of years I practiced fixing the uterus forward in cases where I could leave a healthy ovary, or an ovary that I could leave at all. I can recall half a dozen or more women who have borne children since those operations, and, with one exception, not a single one has aborted. I have reason to believe that abortion was induced in that one case. This woman has since borne two living children. I mention these cases as a matter of justice. I have no doubt that many of these women suffer greatly, and that they not infrequently abort; many women abort much easier than others. But this is not the most serious objection to this operation. In my experience the uterine ligament is a greater reason why we should not do the operation than any other. I claim we have no right to do an operation which places a patient in this additional risk to jeopardize life hereafter. I have had three cases of intestinal obstruction containing a coil of ileum around this little ligament left afterward. Two of the cases I have operated on, the other having declined operative measures. In these two cases the obstruction was not great, but enough to require great care to tide them over several attacks. The case in which operation was refused died. Autopsy revealed a simple case of intestinal obstruction which could have been relieved by operation, and life undoubtedly saved.

DR. C. R. REED, Middleport, Ohio.—In 1870 I treated cases of retroversion and retroflexion of the uterus by certain methods, and I have continued to treat them since that time, and I believe that the operations that have been described to-day are unnecessary in healthy conditions of the uterus and adnexæ. I have treated hundreds of cases of retroversion of the uterus, as well as cases of retroflexion of this organ, have seen the women fifteen years later and they have declared themselves to be in perfect health. They have borne children since. I fear that we do not make a distinction between a healthy uterus with slight displacement and a simple retroversion or retroflexion, which does not necessarily cause a morbid condition aside from displacement. I have found trouble in managing those cases in which there was a roomy pelvis. Now, there may be cases in which fixation or suspension of the uterus, after the manner suggested in the papers, may prove successful, and it may be a proper operation to perform; but I rise to protest against resorting to suspension or fixation of the uterus in cases where simple means will accomplish the same or a better purpose.

DR. RUTH, closing the discussion on his part.—No member respects the opinions of Dr. Goldspohn more than I. It is not worth while to take up all the objections of the different forms of operations that have been devised and practiced for the relief and cure of uterine displacements. We must recognize the fact that only about 15 or 20 per cent. of the cases of retroflexion are cured by any method of either medical or mechanical treatment. This, I believe, we are all willing to grant. A mere displacement of the uterus, a retroversion or reflexion, does not necessarily mean that the patient needs any sort of treatment. I have had a little experience with the different forms of ventrofixation and suspension, and with me they have been so unsatisfactory in the main that I have practically abandoned them. I do not believe in the case of a woman who may possibly become pregnant, that we should substitute one pathologic condition for another. The normal uterus must be a mobile uterus, and the principal point in connection with my paper was the fact, as I have found in my experience, that we cannot expect. Dr. Goldspohn may say that he never finds a case in which we can find sufficient strength, when he has folded the parts together in the abdominal portion far enough, that they will give sufficient strength to hold the uterus forward and be able to carry the individual through the period of pregnancy, and yet maintain the uterus in its anterior position. That may be his experience. I do find attenuated ligaments which give me much trouble in a few cases, so that I have devised this simple plan which you have heard me describe. I hope further experience will demonstrate its usefulness and success.

DR. GOLDSPOHN, closing the discussion.—Answering my friend from Cleveland (Dr. Humiston), and Dr. Reed, I will say that I saw things as they see them, and used their weapons just as they do, up to five years ago. At that time I sacrificed the appendage in toto of a much greater number of women in proportion than I do now. I will say further, that I have good cause to believe that they would sacrifice the appendages entirely in one-half the cases in which I do this combination of operations and save the patient's fertility in every case, and also get them well. You cannot handle with pessaries the cases in which I do this operation. It must be understood that I am not speaking of simple cases. The old Alexander operation is not competent to deal with these cases. But, when I stretch the small openings in the peritoneal cavity, that are necessarily made if the round ligaments are shortened properly, by introducing a pedicle forceps and separating its blades, I can introduce my index finger into the cul-de-sac and sweep it over the entire posterior surface of the uterus and liberate the appendages, draw them out of the opening on either side, and trim or remove them. I care very little about the extent of adhesions. But I must have insured myself by repeated bimanual palpation, when the bladder and intestines are empty, that there is no pus, etc., there that could be squeezed into the abdominal cavity. I have my finger in there just as well as I do in a vaginal section, and as a skilful surgeon can deal with the adhesions through a small median ventral incision. The old Alexander operation, without this extension or combination with inguinal celiotomy by way of the dilated internal inguinal ring, is utterly out of question.

I agree with what has been said with reference to slender ligaments. But the part of the round ligament that lies within the broad ligament, is, alone, made to serve. And in drawing out this portion of the round ligament (illustrating) that lies within the broad ligament, you will find the peritoneum intimately adherent to it on one side. We should guard against stripping this off; I always preserve it and a wider strip of the layer of peritoneum, if possible, to reinforce the ligament. After separating the adhesions of the uterus and ovaries, I bring the ligament out far enough by loosening it from the lateral end of the broad ligament, so that when we pull upon it we pull from the fundus uteri, and not from the attachment in the broad ligament, and thus bring the uterus far enough forward. When the round ligaments are developed by the operator in this manner, I have not yet found that they would not hold. I attach the ligaments, not to movable and elastic muscles, but to the under surface of Poupart's ligament, which is unyielding.

In regard to the technic of doing this, and how it can be done so as not to cut off the circulation in the round ligament, let me say that by grasping some muscle tissue in each suture before passing the needle through or around the round ligament, the ligament becomes cushioned in vascular muscle, which guards against cutting off its circulation; and the bunch of muscle which we draw down against the under surface of Poupart's ligament at the same time also secures the guarantee against hernia. (Dr. Goldspohn went into further details connected with the method described by him, by drawings on the blackboard.)

CEREBROSPINAL MENINGITIS.*

SOME UNUSUAL FEATURES IN THE EPIDEMIC FORM.

BY GEORGE LOUGHEAD EYSTER, M.D.
ROCK ISLAND, ILL.

The writer makes report of the following two cases of edidemic cerebrospinal meningitis with regret that they do not carry with them any original research or new matter in the etiology or pathology of this disease, but with the idea that they emphasize one of the theories as to the access to the meninges of the pathogenic microorganism now generally recognized as its exciting cause, viz., through the nasal chambers, and secondly, that they rather uniquely illustrate the markedly intermittent type of the disease, with the accompanying lesson that unless great caution is used by the observer, he may readily confound apparent therapeutic results with coincidents in the course of the disease.

It is thought by a large number of authorities that the infection atrium of this disease is the nasal chambers. Indeed Strumpell early pointed out that the disease is frequently preceded by an intense coryza, and Weichselbaum and other bacteriologists following him find the diplococcus intracellularis meningitidis in the nasal discharges of a large proportion of those affected by epidemic cerebrospinal meningitis.

In both the following cases there was history of preceding coryza, the presence of mucopurulent discharges from the nose, cultures from which developed a coccus with all the characteristics of Weichselbaum's diplococcus. In both, the disease was markedly intermittent, assuming in one the tertian type, and in the other the quotidian.

CASE 1.—T. B., a saloonkeeper, aged 46 years, gave a negative family history; had always been a healthy, robust man; had never been seriously sick; drank moderately, but never to excess. He was attacked by violent chill and rigor at 4 p. m., February 26, 1899. When first seen by the writer, five hours later, he was very restless, continuously tossing from one side of the bed to the other. The face was livid, with extreme anxiety depicted upon it. There was diffuse and uniform redness of the conjunctiva. The pupils were unequal, the right much dilated, the left contracted; the tongue was heavily coated. The head was retracted; there was convulsive contraction of the muscles of the arms and legs. The temperature was 105.3; pulse 130, respiration 28. There was a mucopurulent nasal discharge, which it was learned had existed for several days previously. He complained of the most intense pain throughout the whole head, and of shooting, stabbing pains radiating from the upper portion of the spine. These pains were much aggravated by pressure upon the spinous processes of the cervical and upper dorsal vertebræ.

There was marked hyperesthesia of the skin, rendering it extremely painful to the slightest touch. Any attempt to flex the head evoked outcries of agonizing pain. There was marked delirium, which rapidly increased until it became maniacal and he had to be restrained to be kept in bed.

Twelve hours after the chill there was a herpetic eruption about the lips, and petechiæ appeared upon the abdomen and chest. At this time the symptoms began to decline, and at 8 p. m. of the second day the temperature was normal; pulse 72, respiration 18; delirium had disappeared; pain in the head and about the spine had much subsided, so that the patient complained only of slight headache. The tongue cleared, and during the following twenty-four hours there was some appetite for food. There were some hours of refreshing sleep. Forty-eight hours after initial chill, there was a return of pain, with some vomiting. Temperature was 101, pulse 120, respiration 32. Delirium, head retraction, convulsive muscular contraction appeared which rapidly developed into marked opisthotonos. This condition lasted for several hours, gradually subsiding until in about twelve hours the patient appeared in comparatively normal condition. Temperature 98.3, pulse 80, respiration 20.

On the fourth day the patient felt quite well, was rational, and complained but little of any discomfort. This condition continued until the evening of the fifth day, when he became comatose, with stertorous breathing, and clonic spasm of the muscles of most of the body. Temperature 102, pulse 112, respiration 28. There was involuntary urination and a duration of this condition for twelve hours.

On the morning of the sixth day temperature was 97.8, pulse 62, respiration 20. Patient's condition was good during the sixth day, and until evening of the seventh day, when there was a recurrence of the symptoms of the third day; with return on the morning of the eighth to an apparently normal state.

The evening of the ninth day there was another recurrence of opisthotonos and delirium, but the temperature was 97.2, pulse 48, respiration 26. The delirium and convulsions were of shorter duration, subsiding in about four hours, and it was observed that there was paralysis of both lower extremities, and the patient appeared somewhat dull, was slightly deaf, but would respond rationally when spoken to.

At 8 p. m. of the eleventh day, he went into a comatose state, with stertorous breathing. Temperature was 100.2, pulse 42, respiration 24. He remained in this condition for fifteen hours, when he again became conscious, and partially rational; there were involuntary dejections from the bowels and bladder; temperature 97, pulse 34, respiration 26. This continued until 6 p. m. on the seventeenth day, when he again became comatose—temperature 96.5, pulse 32, respiration 24—and continued in this state until death, which occurred at 7 a. m. on the eighteenth day. Urinalysis was made several times after the third day, and albumin in considerable quantity with numerous casts was found upon each examination.

A specimen of the mucopurulent nasal discharge from the nose was taken at the first visit made, and again, about forty-eight hours later. Lumbar puncture was made on the fifth day, and about half an ounce of fluid withdrawn. Cultures from all three of these specimens were made on blood-serum agar and colonies of micrococci developed which appeared in diplococcus form of two hemispheres, separated by an unstained interval, and were readily decolorized by the Gram method of staining, and were undoubtedly the diplococcus intracellularis meningitidis of Weichselbaum.

Autopsy was made six hours after death. The dependent portions of the body exhibited extensive livid areas. On opening the calvarium the dura was found congested, and thickened, and at a number of points adherent to the arachnoid. The entire pia was infiltrated with a thick purulent fluid, especially marked about the posterior regions of the cerebellum, with numerous deposits of fibrinous lymph throughout the meninges, and especially along the course of the larger vessels. There were several foci of softened semipurulent tissue in the brain substance. The membranes of the cord were in much the same condition as those of the brain.

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The dura was separated from the vertebræ at several points by extravasated blood. The cord was almost imbedded in a thick fibrinopurulent exudate. The roots of the spinal nerves were bathed in pus. Numerous points of myelitic softening were found in the cord. The lungs were hyperemic and edematous. The heart was soft and flabby, containing some soft coagula. The liver was congested, and its tissue soft and friable. The kidneys were flabby and congested, and the renal tubules were filled with fat granules and fibrinous casts.

Cultures made from the cerebral and spinal fluids developed the diplococcus intracellularis meningitidis.

CASE 2.—J. M., a female aged 9 years, came home from school at 3 p. m., February 20, complaining of severe headache, some chilling and vomiting. When seen, one hour later, there was general clonic spasm, retraction of the head; pupils were extremely dilated; temperature was 106, pulse 150, respiration 42. There was intense coryza, with mucopurulent discharge, which was said to have been in existence for three days; there was delirium, which was succeeded after about six hours by a semicomatose condition from which the patient could be aroused only to complain of intense pain in head.

Temperature gradually declined until 8 a. m. February 21; the temperature was 99, pulse 90, respiration 22. The pain in the head was greatly relieved, though there was still some retraction which, on attempt at flexion, gave rise to pain in neck.

At 5 p. m. there were again clonic convulsions. Temperature was 103, pulse 130, respiration 34. There were also delirium, head retraction, and later semicoma.

Third day. Morning temperature was 99, pulse 92, respiration 24. She was rational, had slight headache, feeling fairly well. At 6 p. m. there was recurrence of convulsions, severe headache, and delirium—temperature 102, pulse 120, respiration 32—followed by slight coma and gradual decline of symptoms, until morning, when the child was found quite deaf, and displayed difficulty in swallowing.

This condition continued for fifteen days, with morning remission or intermission, and evening accession; the accession growing of milder nature each evening, until on the sixteenth day no seizure occurred, and the evening temperature was normal. On the fifth day lumbar puncture was made, and two drams of fluid withdrawn. Cultures from this and from the nasal discharge were made, and developed the diplococcus intracellularis meningitidis.

The child went through a protracted convalescence, suffering for a time complete loss of voice, distortion of vision, difficulty in swallowing, and albuminuria, but at the present writing has regained her normal condition, with the exception of partial deafness.

CEREBROSPINAL MENINGITIS.*

BY T. N. MILLER, M.D.

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Cerebrospinal meningitis is probably a microbic disease. Recent researches prove that the diplococcus intracellularis meningitidis of Weichselbaum is the active causative agent in producing the disease. Cerebrospinal meningitis has appeared at different times and in widely separated regions in an epidemic form, remaining in the same regions as an endemic disease, and manifesting itself in sporadic cases. There was such an epidemic in Northern Illinois in 1878 and 1879, and to the sporadic cases following that scourge and coming under my own personal care this paper will be devoted.

It is not my purpose to enter exhaustively into the history of cerebrospinal meningitis, which must be familiar to you all. It will suffice for our purpose to say that preceding the beginning of the nineteenth century we have no clearly defined and sharply outlined picture of this disease. Visseux of Geneva gave, in 1805, the first clear clinical record of the disease. Then, American writers at Medfield, Mass., in 1806, took up the history. From this time we have a series of epidemics occurring in groups from 1805 till 1816; from 1837 till 1860, and then 1856 till 1864. Since that time we have had scattered epidemics of the disease, which, indeed, may be said to have become endemic in most of our large cities, so that the yearly mortality statistics of most of them show some victims of this disease. Its history shows clearly that cerebrospinal meningitis appears simultaneously in widely separated communities having no common means of communication and under entirely different hygienic surroundings. It attacks both sexes alike, and may appear in homes of luxury as well as in the abodes of poverty. It is usually said to be more severe when overcrowding and filth abound, still Scotland has never been visited by it, although "crowd-poisoning" is as great there as in any country. Its history also shows us that cerebrospinal meningitis occurs most frequently in the winter months.

In 1887 Weichselbaum described the diplococcus intracellularis meningitidis, which he found in six cases of cerebrospinal meningitis, though he did not consider it is the cause of the disease, but only as associated with the pneumococcus, the causative microbe. In 1895 Jager found the same diplococcus in twelve cases, and Huebner found it in nine. In the remarkable monograph by Councilman, Mallory and Wright of Boston on the 111 cases of an epidemic occurring there, the diplococcus was demonstrated in 31 cases of the 35 examined postmortem, hence, as Prof. Sydney Thayer says, "There is now no doubt that it"—the diplococcus intracellularis—"is the cause of this disease."

This microbe, hidden in the cellular bodies of the polynuclear leucocytes, is demonstrated with difficulty. It is best grown on Loeffler's blood serum and is stained by Gram's method. The cocci are coffee-bean shaped and appear in pairs or tetrads. The usual point of entrance into the system is given as the nasal mucous membrane, though this is not clearly proven. In some cases its presence in the nasal cavities of well people, as well as those suffering from the disease, has been demonstrated. It is quite probable that in cases complicated with dysentery, it may gain entrance to the blood by the lesion in the bowels. In experimental research, pure cultures injected subcutaneously will not produce the disease, but when thrown into the serous cavities of the susceptible animal they will always produce it. The difficulty of cultivation and the low vitality of the microbes have rendered the disease one of the most difficult of experimental investigation and the hardest to decide as to the mode of entrance into the system as well as to the means of propagation outside the human body.

That cerebrospinal meningitis is contagious is held by but few writers at the present day, though doubtless many of you may have read in the JOURNAL of this year a series of articles by Dr. W. J. Class of the Chicago Health Department and recall his conclusions "that epidemic cerebrospinal meningitis is to be classed among contagious diseases, belonging in this respect to the same category as phthisis pulmonalis"; and, again,

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"persons affected with this disease should, whenever possible, be isolated and all evacuations rendered sterile by the use of antiseptics." I think these conclusions are hardly justified by the cases cited in the article and certainly not in the history of epidemic cerebrospinal meningitis. All contagious diseases spread by contact of the well with the sick or along the usual avenues of travel. This disease does neither. J. Lewis Smith says of the epidemic in New York in 1871: "Cerebrospinal fever, previously unknown in New York, began, as stated above, in 1871 among the horses in the large stables of the city car and stage lines, disabling many and proving very fatal, while among the people the epidemic did not properly commence till January, 1872. Although a few isolated cases occurred in December, 1871, no evidence existed as far as I am aware that the disease was in any instance communicated by these animals to man. Those who had charge of the infected horses, as the veterinary surgeons and stablemen, did not contract the malady, certainly not more frequently than others who were not exposed."

Professor Osler says: "The disease is not directly contagious; it is probably not transmitted by clothing or the secretions." Wood and Fitz, in the "Practice," say: "It is not contagious; the attendants of the sick are rarely affected, and there is no evidence that the disease passes directly or indirectly from man to man. It is not known to be caused by fomites." Loomis' "Practice" says: "Cerebrospinal meningitis is in no sense a contagious disease." Professor Whitaker remarks: "The fact that the disease occurs at the same time in places so remote from each other speaks decidedly against the theory of contagion." L. Emmet Holt says: "It is not contagious in the ordinary acceptance of the term."

So we might continue to cite from other well-recognized authorities, but sufficient has already been given to show that in the opinions of the best writers cerebrospinal meningitis is not contagious. To appeal to our own personal experience, we all have treated cases without enjoining isolation and we have no cause to regret our action in this respect. I have never known a nurse or attendant to contract the disease by caring for the sick. Can we say this of any contagious disease?

It is extremely difficult to give a clear pen picture that will cover the multiform symptoms of cerebrospinal meningitis. It will help us in our task to describe it as it appears under the different forms of the fulminant or malignant, the ordinary type, and anomalous forms.

The malignant type presents the awful picture of rapid descent from apparent robust health to death in a few short hours or days at the longest. Almost like a stroke of lightning from a clear sky, its victim is hurried into eternity. There is evidence of great shock; chill or chilling sensation; acute agonizing pain in the head and back of neck; pupils usually contracted and irresponsive to light; pulse small, thready and often irregular; cutaneous circulation sluggish, and surface often mottled or spotted; delirium that is soon followed by swift oncoming coma, preceded by convulsions or convulsive movements and death soon closes the scene. The poison, as is shown by the profound alteration in the blood, the comatose condition, the convulsive movements, and the swift coming of the end, has rapidly and surely done its deadly work.

In the ordinary form the onset is more gradual. The patient often complains of not feeling well for a day or two, with chilly sensations, rarely a regular chill, with more or less pain in the head and neck and sensitive places along the spine; there is always more or less hyperesthesia of the cutaneous surface; the pulse is almost always accelerated and the cutaneous circulation sluggish. The temperature is very irregular, seldom above 103, and has no regular daily curve, as in typhoid fever. The characteristic stiffness of the muscles of the back of the neck develop in a day or two and may go on to complete opisthotonos in the second week, at which time tonic convulsions are very frequently produced. Dysphagia may also develop to such an extent as to hinder the patient's taking medicine or sufficient nourishment. Delirium is very common in the severe cases, requiring constant watchfulness to prevent the patient from injuring himself. The ability to apparently converse rationally, and yet to have no distinct knowledge of passing events, so that when convalescence is established, the patient will take up the work engaged in on the day taken sick, is a characteristic in many cases of this disease. In those recovering, the rigidity of the muscles of the neck gradually grows less, pain is less constant, the mind becomes more rational, the rest more quiet and refreshing, the temperature approaches the natural, and thus convalescence is fully established; while in fatal cases the patient is either racked with pain by frequently recurring convulsions which exhaust the strength, or the pulse becomes more rapid and weak, until he sinks into coma, the forerunner of death. The duration of cerebrospinal meningitis is from two weeks to two months.

Of the anomalous forms I wish to speak of but a few of the many types. The abortive may begin like the ordinary attack, only with less fierceness and with all the characteristic symptoms, as chill, hyperesthesia, headache, stiffness of muscles of neck, sensitive spots along the spine, and yet all these subside in a few days and soon complete restoration to health takes place.

The intermittent type has much in common with intermittent fever, though it may develop many of the characteristic symptoms of the true disease and yet have an intermission of a week or more, with a complete return. This is the form which leads to the use of large doses of quinin for its cure.

Pathology.—In the fulminant type, where death occurs in 24 to 48 hours in the majority of cases, an intense hyperemia of brain and cord and an effusion of bloody serum in the ventricles of the brain may be the only manifestations visible to the naked eye, though the microscope will reveal the beginning of fibrinous deposit over the basilar surface of the brain and crenated red blood-corpuscles. There is also visible a profound alteration of the blood, characteristic of intense systemic poisoning, as shown by its dark color and soft clots.

In the cases where death occurs later in the disease we have the clear evidence of the profound alteration of the blood with added evidence of local inflammation, with patches of purulent matter in the ventricles over the base and in the sulci of the brain. The brain tissue is much softened, especially in the cerebellum and the posterior surface of the cerebrum. There is not usually a large amount of effusion in the ventricles or the spinal canal. The microbes found—by cultivation—are the diplococcus intracellularis meningitidis of Weichselbaum, the pneumococcus, and various pus-producing bacilli. There are no characteristic lesions found in other parts of the body. There is often hypostatic congestion of the lungs, bronchitis, pleuritis, and pericardial effusions, as well as effusion of blood beneath the skin, which gave rise to the name of "spotted fever," sometimes applied to the disease. In a word, there is evi-

dence of systemic poison and consequent congestion in other organs than the brain and spinal cord.

Diagnosis.—When cerebrospinal meningitis occurs as an epidemic with the clear-cut characteristic symptoms of chill, intense pain in head and back, stiffness of muscles in back of neck, irregular fever and pulse, and hyperesthesia of skin, there is usually litttle difficulty in diagnosis, taking the whole history into consideration. It has not the slow on-coming, the gradual rise and regular curve of temperature of typhoid fever, nor the intense persistent fever and the intense mottling of the whole surface peculiar to typhus. In malignant scarlet fever we may have the intense headache, vomiting, chill, and the convulsions which characterize fulminant cerebrospinal meningitis, but there the parallel ends, as in one the high temperature continues unabated and the scarlet rash may appear, while in the other the temperature varies and only spots, not a rash, are shown. In all doubtful cases that live long enough the diagnosis may be cleared up by Quincke's lumbar puncture and cultivation of the fluid obtained from the spinal canal. The presence of the diplococcus intracellularis of Weichselbaum puts at rest our diagnosis and stamps the disease as epidemic cerebrospinal meningitis.

Prognosis.—Cerebrospinal meningitis is justly regarded as a most fatal disease, both from its intense nature and the vital parts it involves in inflammation. It is usually fatal in the very young as well as those beyond 50 years of age. The death-rate varies in different epidemics from 20 to 79 per cent. The fatality of sporadic cases varies at different times. Of my own cases, nine in number, only one resulted fatally, and that was in a woman over 60 years of age. Of those who survived, not one was left with any informity or impairment of any organ. Several were of more than the average degree of severity and take in the range of age from the infant of one month and four days to the grandmother of over 60 years. I can hardly believe that this result was due merely to chance nor to the fact that the disease was lighter, but rather to the systematic and faithful use of remedies to avert disaster.

Treatment.—To treat this disease symptomatically, as we are sometimes advised, when the symptoms change so radically and in such a short time, seems to me the height of medical folly, and there is just as much foolishness in trying every remedy that has been advocated for it, even when sanctioned by high authority. The discovery of the microbe that causes the disease leads us to the hope that the day is not far distant when an antitoxin or serum will be found which will give us complete control of this dread disease. In the meantime we must use the remedies that have stood the test of time and experience. In the earlier stages we clearly need to lessen the congestion of the brain and spinal cord, and at the present time we know of no better remedies than ergot and calabar bean pushed to full physiologic results. In the bromids we have a less efficient agent, but more valuable in children than for adults. In this stage of a disease that is so depressing on the system and so debilitating, to say that we should avoid bleeding or even the local application of leeches seems almost axiomatic. With the strong bounding pulse, the pulsating carotids, the flushed face, the active delirium, and the stertorous breathing, the temptation to bleed may be very strong, but beware of the delusion; the reaction is sure to come—and that swiftly—when we will need all the vital forces intact to overcome the tendency to fatal collapse.

While I cannot call the opiates "the sheet anchor of hope" in this disease, yet I can see how they are of great aid in all stages of the disease—in the earlier to relieve shock, and in the latter stages to procure the rest and quiet which is so essential to overcome its depressing effects.

The early, and by that I mean within the first three days of the beginning of the disease, and continued use of the iodids I consider of paramount importance, from their well-known power to prevent suppuration and effusion into the ventricles of the brain and also softening of the brain tissue. For it seems to me that the paralysis which is so often fatal is due to softened and disintegrated brain tissue rather than to effusion pressing upon the nerve centers.

To assist these remedies I have used counterirritants in the form of mustard plasters or mustard-oil liniment to the spine. In more than one case and instance I have witnessed the strong mustard liniment applied and seen the little patient cease its moaning and tossing and fall into a quiet refreshing sleep. I have never used cold applications or the ice coil, for fear of the distressing effect upon the general circulation and the stagnation of blood when applied.

That cerebrospinal meningitis demands the best care and nursing, and most judicious feeding during the whole course of the disease is clearly self-evident. But I will not weary your patience further than to say that we must secure the best ventilated room possible, free from extra noises, and a nurse who will see that the patient is properly cared for without undue disturbance, and who will watch the many changing phases of the disease and meet the many emergencies that arise, with promptness and tact.

DISCUSSION ON PAPERS OF DRS. EYSTER AND MILLER.

DR. J. C. WILSON called attention briefly to three points. The first is the importance of Kernig's sign in diagnosis. This sign consists in a condition of spastic contraction of the flexor muscles of the thigh which prevents the extension of the leg when the thigh is flexed at right angles to the long axis of the trunk. This sign has been found to be present in almost all cases of cerebrospinal fever, and has been especially studied in this country by Herrick of Chicago. It is of diagnostic importance at a time like this when cerebrospinal fever and enteric fever are prevalent.

The second point relates to the contagiousness of cerebrospinal fever. While the direct transmissibility of the disease has not yet been established, there are many points in its clinical history and in its epidemic prevalence that indicate some form of transmissibility, and until the matter is finally settled it is better to assume the possibility of direct transmission and carry into effect such measures as isolation and the disinfection of localities.

The third point relates to the treatment. Recent observations are in entire harmony with the experience of the older practitioners as regards the use of opium in full doses in the management of this disease.

DR. DIDAMA of Syracuse.—A few years ago at Syracuse there was an epidemic of cerebrospinal meningitis. The attacks were like those mentioned here, very severe. I saw patients perfectly well, and the next day they were dead. The treatment given consisted in large doses of bromids, without any effect whatever. Word came to us that Dr. Wilson of Pennsylvania had decided that this was cerebrospinal fever, and that the successful treatment was by the use of opium alone. We resorted to the opium treatment immediately. The cases so treated got well, while the cases under other treatment died.

DR. J. H. MUSSER of Philadelphia.—I wish to speak of the value of the lumbar puncture as a diagnostic procedure and as a therapeutic measure. It has been my fortune to see a number of cases of this disease recently, and I cannot reinforce too strongly what has been said upon the necessity of lumbar puncture in making a diagnosis. This should be resorted to in order to confirm those who are suspicious of the nature of the case. The procedure is not dangerous. I have performed it in a number of cases, and never have I seen any ill results following. However, as a therapeutic measure, there is no doubt that in some cases there is great relief It is a

relief to the headache and to the irritative symptoms that occur in the early period of this disease. Often when we have the stupor coming on relief follows the withdrawal of the fluid.

I wish to call attention to the operation of laminectomy that was first performed by Dr. Rollinson of London, which was successful; my cases were not so relieved. I am satisfied that laminectomy is a rational procedure. Where perfect asepsis can be obtained, and where there is great pressure, then laminectomy is indicated. In a case treated by Dr. Martin he removed the lamina of the lumbar portion of the cord. In many cases where the pressure is small it will be impossible to get any fluid unless you aspirate. In other cases where there is much lymph you plunge your needle into a mass of the consistency of butter, and so you get no fluid. Three such cases occurred under my care. I do not wish to take away the importance of opium; outside of the mechanical procedure opium is the only drug in the treatment of cerebrospinal meningitis.

DR. T. B. FUTCHER of Baltimore.—I was in charge of an epidemic of cerebrospinal meningitis during the past year in Maryland. In 1892 there was an epidemic in the northern part of the state, but since then there has been no epidemic in the state until during the past twelve or thirteen months. During the past year 17 cases were admitted to Dr. Osler's wards in the Johns Hopkin's Hospital. Of these 17 cases, 8, or 47 per cent., terminated fatally. I wish to confirm Dr. Musser's statement regarding lumbar puncture, from a therapeutic and diagnostic standpoint. If all the cases were obtained early enough one would be enabled to make a positive diagnosis in a large percentage of these cases. Well-known organisms die out in the spinal fluid readily. At the end of two weeks the examination of the cover-slides may prove negative, but if lumbar puncture be done before this, in a great percentage of cases the diplococcus will be found. In many cases this procedure is done from a therapeutic standpoint with temporary results only. I regret to say that no cases recovered in which lumbar puncture was done as a therapeutic remedy. In one case it was performed, and twelve hours after the puncture there was a marked relief in the symptoms, the stupor and the rigidity diminished, and in several instances there was a drop of three to four degrees in the temperature. I have not the slightest doubt that the patients' lives were markedly prolonged in two or three cases.

In regard to Kernig's sign, it was present in all cases in which it was looked for. In regard to the symptomatology of the disease, in a small percentage of the cases one of the earliest symptoms was development of a severe arthritis. In one case the arthritic symptoms appeared on the third day of the disease. There was a marked swelling of the joints, pain, and a purpuric appearance of the joints. In one case, on the second day after admission there was a distinct fluctuation in the knee-joint. This was aspirated, cultures taken, and germs were found in the cultures. This is the first case in which the organism has been found in the joint in arthritis associated with cerebrospinal meningitis, and the first case in which it was found in the general circulation of the blood. This case in which the organism was found in the joint cavity throws some light upon the character of the arthritis in infectious diseases and lesions of the spinal cord. It is distinctly due to organisms in the particular case, and here it is fair to assume that the arthritis may be considered as secondary to the spinal lesions of a trophic nature.

DR. SCOTT of Iowa.—I wish to speak of the contagiousness of the disorder. I also believe that it is often impossible in many cases to trace every infectious disease to some previous case. I believe that there must be some source at large outside of the body. For that reason I believe that the origin of infectious diseases is decomposing animal and vegetable matter. I believe that if cerebrospinal meningitis occurred in the throat and as the germs occur there it would be contagious. I believe that if it occurred in the alimentary tract it would be contagious. If it did not occur in closed sacs it would be scattered and eliminated from the body, and the contagion scattered by the atmosphere or some mechanical means.

C. F. WAHRER, Ft. Madison, Iowa.—In a disease, the pathology of which is obscure, the therapeutic indications must of necessity be of an empiric character. And as far as its contagious or noncontagious character is concerned, whether we find Weischselbaum's bacillus or the pneumococcus intracellularis present or not, or whether we have the disease on account of or independent of these germs does not matter so much in our management of its contagious or noncontagious character. Better consider this dangerous and terribly mortal disease dangerous to all concerned and isolate your patient if for no other reason than that of rest. In a severe and unusually prolonged case of mine, following la grippe, I kept the patient isolated, and observed what Dr. Wilson of Pennsylvania tried to emphatically bring before you, namely, to give this contagious character the benefit of a doubt. I gave her gelsemium, opium, belladonna, bromids, chloral and ergot, as well as several other things that the symptoms called for; made hot applications for prolonged periods, which relieved her of pain, and when sufficiently recovered sent her to Albuquerque, N. M., whence she returned splendidly recovered.

Some gentlemen emphasize the use of opium alone, but it does not matter which of the remedies you use, or even the surgical procedures mentioned by Dr. Musser—spinal puncture and laparotomy—they are all, every one, sedative measures. I think that where we fear organized processes we may with benefit give our patients iodids in the late stage to carry off morbid accumulations through the absorbents. I doubt if opium, so emphatically insisted on by some of my confrères, can be used at all in the younger children.

DR. BRADWOLL of St. Louis.—During the past winter there were 34 cases of epidemic cerebrospinal meningitis in the wards of St. Luke's Hospital, where an opportunity for studying the disease was had, especially from the bacteriologic and pathologic standpoint. In 33 cases was the diplococcus demonstrated. In the other case the clinical signs were the same as the rest, and it was practically a sporadic case. The previous reports of the disease show the diplococcus lanceolatus to be the specific microorganism. It is mentioned that Gram's method of stain is the differential test between the diplococcus lanceolatus and the diplococcus intracellularis meningitidis; in experience it is a poor means of diagnosis. In one decolorize, in the other not. In the coverslip preparations some color deeply and others very feebly.

I also wish to reiterate the value of the lumbar puncture as a means of diagnosis. It is interesting to find this micro-organism. In one particular class where there occurred a bad exudation great improvement followed this procedure. As for the clinical aspects of the case, the sign of Kernig was invariably present. It was present in 34 cases. One case was of especial interest, as it was one of intrauterine cerebrospinal meningitis. The case occurred in a woman who was in the hospital, and was at the seventh month of pregnancy. She was sick two days; the disease was of the fulminant order. The fetus was dead. The woman lived one day. The autopsy showed a meningitis of both mother and child, which was confirmed by bacteriologic methods. The diplococcus was found in both mother and child.

DR. RABBOLD of St. Louis.—I am interested in the last case reported, which is the only one on record of the micro-organism passing from the mother to the child. In the midst of the St. Louis epidemic there was one death a week from it. Statistics show that during 1896 there were 18 cases and 17 deaths; during 1897 13 cases, with 10 deaths; this year there have been 141 cases, with 81 deaths. At the time of an epidemic in the city we sent out two physicians who asked a series of questions from the physicians, and there were 43 answers received. Among the questions asked was that of Kernig. Many of them did not know what Kernig's sign was. We described it thus: The patient is laid over on the bed; then the leg is extend and relaxed. If the patient then be raised to a sitting posture the legs are drawn up on the abdomen and the legs are crossed over each other. It is a remarkable sign. In the histories received it appeared in 95 per cent. of the cases, and appeared early, always within forty-eight hours.

Regarding the contagiousness of it, there were only two cases that gave evidences that the micro-organism was conveyed from one patient to another. One was a woman who contracted the disease and left her husband and went home. The physician begged her husband not to go near her, but he disobeyed; the result was that he contracted the disease and died within five days. In the other instance there were three children in one house, and one after the other contracted the disease.

DR. J. M. ANDERS of Philadelphia.—During the past winter I was called to see a case of this disease. The patient was in a house that might be described as a small tenement, with about six families in it, and the children numbered about thirty. As I entered I found the door of the bedroom wide open and the children in the hall. No precautions had been taken, and the children had free access to the sick-room. The patient had reached the sixth week of illness. No other case of this nature happened in this home. In leaving Philadelphia I was told that none had developed, which shows it to be a non-contagious disease. I concur fully with the views expressed regarding the diplococcus intracellularis; that it can be shown to have the specific requirements of the disease and fulfill the requirements of Koch's law.

I was also going to mention a case illustrating the value of the lumbar puncture as a diagnostic measure. In another case where the symptoms were obscure the patient reached the fourth day of illness, and the only symptom that pointed to this disease was the severe headache. As there were other

cases in the vicinity, I suggested lumbar puncture, which was at once resorted to, and there was found the diplococcus intracellularis, and diagnosis was so made on that fact alone; on the day following rigidity of the neck muscles appeared. In obscure cases lumbar puncture should be resorted to to make a diagnosis.

In regard to the treatment, I was struck with the fact that many physicians regard ergot as the remedy of choice. I have seen six cases in consultation, and in four of them was ergot resorted to, to the total exclusion of opium.

DR. T. N. MILLER, closing the discussion.—There seems to be a wide diversity of opinion regarding the treatment of this disease. The line of treatment has proved successful in my experience, and also in the experience of many other physicians in that section of the country from which I come. Ergot is valuable. Opium should be used at all stages of the disease. I have never seen the necessity of using the heroic doses advocated by physicians.

APPENDICITIS.*

AS A CAUSE OF INFLAMMATORY DISEASE OF THE RIGHT OVARY AND TUBE,

BY A. J. OCHSNER, M.D.

CHICAGO.

During the past five years surgeons have frequently observed the fact that appendicitis may occur in patients suffering from an inflammatory condition of the ovaries and tubes. In reviewing the appendicitis literature, I found a number of articles treating directly of this feature, while it is referred to occasionally in articles discussing the etiology and diagnosis of salpingitis.

Most of these observers speak of the difficulty encountered in making a differential diagnosis. George R. Fowler[1] points out the fact that the proximity of the appendix to the adnexæ may confuse both objective and subjective symptoms, making differential diagnosis especially difficult.

Sonnenburg[2] points out the frequency with which the two conditions are confounded, as well as the fact that they may occur together, but does not place appendicitis in a casual relation to inflammation of the adnexæ with sufficient emphasis. Dr. Krueger[14], Sonnenburg's assistant, describes twenty-one cases in which his chief found the appendix and the ovary and tube simultaneously involved, giving an abundance of valuable experience especially in the direction of diagnosis. Deaver[3] says that if the appendix is very long and overhangs the brim of the pelvis, it may lead to disease of the pelvic contents. He cites a case in which "the right ovary was the seat of an abscess which had evidently been infected by the perforated appendix[15]." Delagénière[4] considers the disease of the appendix secondary to the inflammation of the uterine appendages, in case they occur in the same patient. M. Borchardt[5] shows that there is a relation between the two conditions. C. Bernardbeig[6] reports an interesting case in which an appendicitis due to a foreign body in the organ coexisted with double salpingitis. Charles Polle[7] has written fully on this condition. H. Barnsby[8] shows that appendicitis may be caused by inflammation of the adnexæ. J. M. Brooks[9] as early as 1895, in the discussion of a paper by Robert Morris, stated that he had found both conditions in the same patient. A year ago an interesting paper by T. J. Rhoads[10] brought out the same fact. Richelot[11] reports six cases in which the differential diagnosis was impossible. Dr. Coe of New York[12] states that appendicitis occurs as a complication of disease of the adnexæ, and that the latter condition is sometimes secondary to the former. Howard Crutcher[16] points out the likelihood that the appendix has much to do with inflammation of the adnexæ. Lennander[18] says that whenever appendicitis results in peritonitis in the iliac fossa and in the pelvis, it is plain that disease of the adnexæ may result. Vautrin[17] points out the similarity between appendicitis and pyosalpinx and their intercurrent effect, but does not state clearly the effect of one upon the other.

It is impossible to review everything that has been written upon the subject of appendicitis, because the past few years have averaged over three hundred articles each upon this subject, but, so far as my investigation of the literature has extended, no author seems to lay sufficient stress upon this source of inflammation of the right ovary and tube.

A number of years ago, during an abdominal section which I performed for the removal of an inflamed ovary, my attention was drawn to the fact that inflammatory disease, especially of the right ovary and tube, is caused by affection originating in an appendicitis, and as my experience has increased, I have become more and more convinced of the fact that this condition occurs very frequently, and it is the object of this paper to point out this fact and its importance, and to substantiate these ideas by a number of histories.

At first it seemed difficult to explain how the right ovary and tube could become implicated except in case of perforation or gangrene of the appendix, or the formation of an appendiceal abscess but since the description of the appendicula-ovarian ligament by Clado it can readily be understood how an affection can progress from the appendix to the right ovary, because the lymphatic and vascular supply of the two organs is in a measure common. Nothing can be more simple than the infection of the right Fallopian tube in case of the formation of an appendiceal abscess, because the fimbriated extremity is most perfectly constructed for this end. There are other facts which indicate that inflammation of the right ovary and tube is frequently due to appendicitis.

Ribbert[13] in examining the appendix in 400 cases, found fecal concretions in 38, and they were found as often in women as in men, which would indicate that appendicitis is as common in one sex as in the other, notwithstanding the fact that operators in general seem to agree that it is much more frequent in men. This, as well as my own observations, has convinced me that the difference is due to the fact that in women the right ovary and tube is so frequently infected secondarily that these cases are supposed to suffer from the latter condition alone, and that in the treatment of these cases the real cause of the inflammation is entirely overlooked.

It is a generally recognized fact that at least 15 per cent. of all cases of appendicitis occur in children under 15 years of age, and that in these the number of girls equals the number of boys. This is also confirmed by my observations. Later in life, if there is a recurrence it is at once diagnosed in the male as an appendicitis, while in the female a certain number of those cases are diagnosed as ovaritis or salpingitis.

In many of these patients in whom there is but a catarrhal appendicitis, possibly complicated with the presence in the appendix of a fecal concretion, the patient is not disturbed except during the period of menstruation, when the temporary congestion is sufficient to increase the irritation in the appendix, as well as in the Fallopian tube, giving rise to a pain of greater or less severity, which is usually looked upon as dysmenorrhea due to the presence of salpingitis.

A number of my patients showed this symptom when the operation demonstrated the presence of catarrhal appendicitis, with or without a foreign body in the lumen of the appendix, or there were severe adhesions

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showing that at some previous time a portion of the appendix had become gangrenous, or there was partial or complete obliteration of the lumen of the appendix—appendicitis obliterans of Senn. Whenever the pain in dysmenorrhea is entirely or mostly on the right side, especially if it is quite high, it is well to suspect the presence of an appendicitis in connection with the disturbance of the ovary and tube.

In giving the histories of my cases, I will give the one which drew my attention to this fact in full, and then all the cases which I treated the past year—1898—consecutively, and in abstracts only, as a review of all my cases of this class would make the paper unnecessarily long and correspondingly uninteresting.

CASE 1.—Miss Lillie H., aged 19 years, the daughter of healthy parents, had enjoyed good health until four years previous to the operation, when she was attacked with a very sudden, severe pain in the right hypochondriac region, accompanied with nausea and vomiting. At first a diagnosis of intestinal obstruction was made, but later this was changed to circumscribed perityphlitic peritonitis.

The treatment consisted of hot fomentations and hypodermic injections of morphia. She was confined to her bed for three weeks. During the next year she had a similar attack which was now supposed to be due to inflammation of the ovary and tube. Later in the same year she had another attack, and was treated by means of tonics, rest in bed and electricity. One year previous to the operation she had another attack, which again yielded to treatment by means of sedatives and hot fomentations. At this time the attending physician, a man of excellent ability, found a prolapsed uterus, an anteflexed cervix, and an extremely tender prolapsed right ovary. She was now treated with counterirritation over the abdomen, local treatment of the cervix and the vaginal vault with tincture of iodin and warm douches. Cotton tampons were tried, but the right ovary was so tender that the patient could not endure the pain.

Her menstruation had always been painful and scanty. She had constantly suffered from constipation. Her appetite had been insufficient, and she had not slept well. During all this time the hygienic surroundings of the patient were excellent. Still she had constantly lost in strength. For several months she had been a confirmed neurasthenic, confined to her bed the greater part of the time.

Physical examination revealed a fairly well nourished girl of medium size, with masculine features, dark hair and eyes, skin rough, upper lip and chin covered with hair, and facial expression indicative of severe suffering. Lungs, kidneys and heart were normal; there was a slight anemic murmur. The uterus was prolapsed, the right ovary prolapsed and so extremely tender that it was impossible to determine the extent of adhesions. A diagnosis of chronic ovaritis was made, and an abdominal section recommended.

On Oct. 18, 1888, a median incision was made, extending from the symphisis pubis to within an inch of the umbilicus. This disclosed the following condition: The omentum was adherent about the cecum, the lower end of the ilium and the appendix and also to the parietal peritoneum, indicating that what I supposed to be a perityphlitic abscess had existed during the first attack mentioned in the history, and that the other conditions were secondary. The right ovary and tube were adherent to the uterus and to a mass consisting of the cecum, appendix and omentum, being held by strong cicatricial adhesions, which accounted for the extreme tenderness of the right ovary. I removed the right ovary and tube, loosened the adhesions which bound down the uterus, but did not dare to disturb the adhesions about the cecum. The wound was closed without drainage.

The patient made a normal recovery. Her neurotic condition vanished, her skin became clear, and she developed into a very beautiful young woman. For two years she had not been able to attend school at all, and for the two years previously only a small portion of the time. Two months after the operation she entered school again and attended regularly for the remainder of this and the next year, when she married. She has since borne five healthy children, and has constantly been in excellent health.

I saw her again in September, 1898, ten years after her operation, and fourteen years after her original attack of appendicitis, and found her in a most excellent condition.

In this case it is plain that an abscess had formed about the appendix, making the latter organ harmless, but that a portion of the infectious material had been carried down to the right ovary and tube, causing an infection of these organs, which caused the severe suffering. Being a virgin, the infection must have come from the appendix.

ABSTRACTS OF HISTORIES OF SIMILAR CASES OPERATED AT AUGUSTANA HOSPITAL DURING 1898.

CASE 1.—No. 4677, Miss E. H., aged 16 years, entered the hospital March 1, 1898. The patient has always enjoyed good health, having grown up in the country. She menstruated at 13 years of age, without pain until one year ago, when she suffered from a typical attack of appendicitis. Since then she has suffered severely during each menstrual period. She has had four typical attacks of appendicitis during the past year; the last one began one month ago, and she is just now recovering. Her present condition is that of a very well nourished girl, evidently unusually strong and vigorous when in good health; she is somewhat anemic, tongue clear, appetite good previous to recent attack, now absent; heart, lungs and kidneys normal. A slight swelling is perceptible over the region of the appendix, also slight dulness on percussion, vaginal examination cannot be made, as patient is a virgin. She has been nauseated, but has abstained from food almost completely during attack.

Diagnosis.—Acute appendicitis; fourth attack.

Laparotomy showed the appendix perforated, imbedded in the midst of adhesions, being surrounded with about half an ounce of pus containing a fecal concretion. The right ovary and fimbriated extremity of the tube were strongly adherent to the surrounding tissues, and helped to form the abscess wall.

CASE 2.—No. 4679, Miss H. M. B., aged 20 years, was admitted March 1, 1898. Aside from the ordinary children's diseases patient has had no severe sickness. Menstruation began at 15 years of age, being regular and only very slightly uncomfortable, and not painful until two years ago, when she began to feel a sharp pain in the right inguinal region during the greater portion of the period. She was able to control this by taking acetanilid, viburnum and whisky. During the last three periods the pain has been excruciating, necessitating the use of morphia hypodermically. The pain is always located precisely in the region of McBurney's point. During the interval this portion of the abdomen is somewhat tender under pressure. The patient has lost several pounds in weight during the past year.

Her present condition is that of a slightly built girl; her facial expression indicates that she has suffered severely of late; tongue coated; appetite bad; bowels regular; heart, lungs and kidneys normal; tenderness over region of appendix.

Diagnosis.—Acute catarrhal appendicitis.

Laparotomy showed the appendix to be severely congested, club-shaped and containing fecal concretion five-eighths of an inch in length and a quarter of an inch in diameter—too large to escape into the cecum on account of the constricted condition of the proximal end of the lumen. The right ovary is also severely congested and more than twice the size of the left one.

CASE 3.—No. 4716. This patient, a married woman 20 years of age, came under my care March 14, 1898, giving the following history:

She was always healthy until two years ago, when she experienced a very severe instrumental labor, lasting sixty hours, during which she suffered a severe laceration of the cervix and perineum. She has not been well since; her menstruation

has been irregular, the discharge being profuse and somewhat prolonged. During the past year she has had several attacks of severe pain in the right inguinal region, usually lasting from four to five days, and recurring every four to ten weeks. Two weeks ago her present attack commenced with severe pain in the region of the appendix. She has suffered from nausea but has not vomited. The lower part of the abdomen has been exquisitely tender. She has had no chills. The temperature has not been observed.

Her present condition is that of a fairly well nourished woman, tongue coated, appetite poor, constipated; heart, lungs and kidneys normal. There is considerable yellowish vaginal discharge; the lower portion of the abdomen is tender and tense; perineum and cervix are lacerated; there is a fluctuating very tender mass to right of uterus.

Diagnosis.—Right-sided pyosalpinx, involving vermiform appendix.

A laparotomy demonstrated the presence of an abscess involving the right ovary, tube and appendix, probably, though not positively, of tubal origin.

CASE 4.—No. 4766, Mrs. E. H., 26 years of age, married about two years, was admitted March 25, 1898. She gave the following history:

She had scarlet fever, diphtheria, pleurisy and typhoid fever as a child. Menstruation began at 18; always regular and painless until three years ago. She has one living child, 5 months old; had rather hard instrumental labor; and has suffered considerable pain in lower portion of abdomen ever since. She has had a few chills, some rise of temperature, and had a fetid vaginal discharge for several weeks after child was born. She was compelled to cease nursing the child when it was two months old, on account of weakness; has menstruated normally twice since, six and two weeks ago. Three months ago, while sitting perfectly still, she had a severe sudden pain in the region of the appendix, lasting two hours, then pain became more profuse and lasted for two days. She had a chill, followed by a fever; vomited once; was constipated. Six weeks and two weeks ago she had slight but similar attacks. One week ago she had a very severe attack; vomited several times; had chills, fever, headache; pain extended in the direction of the umbilicus.

Her present condition is that of a fairly well nourished woman; tongue coated; soft and flabby; appetite fair; bowels constipated; pulse 110; strong, compressible; heart, lungs and kidneys normal; tenderness over region of appendix and right ovary.

Diagnosis.—Acute attack of recurrent catarrhal appendicitis, implicating right ovary and tube.

This was confirmed by the laparotomy, the primary trouble being in the appendix.

CASE 5.—No. 4794, Mrs. J. B. H., aged 26 years, married one year, was admitted April 5, 1898. As a child she was well. She began menstruation at 14 years of age; was never regular, and usually painful; the period varying from four weeks to three months. She has had two typical attacks of appendicitis; one four months ago, lasting two weeks, the other six weeks ago, lasting three weeks, and has been out of bed a little over a week since the last attack.

Her present condition is that of a well nourished but slightly anemic woman, showing the effects of her recent illness. There is considerable tenderness in the region of the appendix. Both ovaries are tender upon vaginal examination.

Diagnosis.—Recurrent appendicitis complicated with ovaritis.

A laparotomy demonstrated a universally adherent appendix, the distal three-quarters of an inch being almost completely destroyed, probably by an attack not recorded in the history, as the patient's parent could not be consulted, and she was unable to give a history of her childhood, although she thought that her health had been generally good. The lumen of the appendix was almost completely obliterated near its attachment to the cecum, preventing the escape of a quantity of pus and mucus and fecal concretions in its lumen. Both ovaries showed old adhesions, probably resulting from infection at time of destruction of the distal end of the appendix. Both ovaries, but especially the right one, and the right tube were acutely congested.

CASE 6.—No. 4823, Mrs. M. D., aged 38 years, married seventeen years, the mother of five children, was admitted April 8, 1898. She does not remember her childhood's diseases. She began to menstruate at 15; had an attack similar to the present one at the age of 26; a second one at 35, and several slighter attacks which she cannot locate accurately as to time. Two weeks ago she suddenly felt a severe pain in the right inguinal region, which was especially severe upon trying to extend the thigh. She has felt slightly chilly several times, but has had no real chill, and has been nauseated but has not vomited. Her complexion is slightly yellowish, but no distinct icterus.

Her present condition is that of a fairly nourished woman, with heart, lungs and kidneys normal. She has pain and tenderness in the region of the appendix, and the right ovary is tender.

Diagnosis.—Recurrent appendicitis, implicating right ovary and tube.

The laparotomy demonstrated an appendix bent upon itself at an acute angle about its middle on account of strong adhesions, due to an inflammation long past. The enlarged distal end contained a quantity of septic material. A marked congestion and recent adhesions demonstrated the presence of a recent inflammation. The right ovary contained a cyst as large as a hen's egg. The right tube was severely congested, showing a recent irritation; it was very tortuous and the fimbriated extremities were agglutinated to a considerable extent. The gall-bladder contained two very sharp gall-stones, as large as a bean.

CASE 7.—No. 4950, Miss E. B., entered hospital May 16, 1898.

She as very healthy until about one year ago when she acquired a right femoral hernia, which was relieved by an operation seven months ago. This, however, had no effect upon the pain in the right inguinal region, from which she still suffers. The patient is a virgin and consequently the examination is made entirely by external manipulation. There is severe tenderness upon pressure in the region of the appendix and the right ovary; other organs are normal. Menstruation is painful.

Diagnosis.—Chronic appendicitis.

Laparotomy shows appendix 10 inches in length containing a number of fecal concretions, the largest one the size of a pea; proximal end constricted but not obliterated. The distal end of the appendix was strongly adherent to the ovary and tube, the fimbriated extremity of the latter being also obliterated.

CASE 8.—No. 4989, Miss J. F., a saleslady, aged 33 years, was admitted to hospital May 28, 1898.

She has always been well until two months ago; began to menstruate at 17 years of age, suffering very slight pain at times. Eight weeks ago she began to suffer from severe pain distributed over the entire abdomen; this became more and more circumscribed during the first three weeks, when it became permanently located in the right inguinal region. She suffered from nausea and vomiting, but had no chills. During the first week the pain was severe; during the second week the patient was up a little; during the third week she menstruated and immediately after had a relapse. From this time on she had chills repeatedly. A week ago she menstruated and suffered more pain than usually. The pain and tenderness in the right inguinal region have persisted. Her present condition is that of a slightly emaciated woman; complexion not clear; tongue coated, appetite fair, bowels regular, pulse 100, fairly strong, has temperature of 100 in the afternoon. Lungs and kidneys are normal; first sound over mitral valve is not perfectly clear, otherwise heart is normal. A large, rather firm, mass is found in the lower portion of the abdomen, on the right side, extending to the median line and nearly up to the umbilicus. The mass can be felt through the vagina.

Diagnosis.—Pelvic abscess probably of tubal origin.

The laparotomy demonstrated the presence of a universally adherent ovarian cyst, to the upper portion of which was attached a long inflamed perforated appendix. The cyst had evidently caused neither pain nor inconvenience until it became infected from the appendix.

CASE 9.—No. 5137, Mrs. Wm. D., 32 years of age, married at the age of 29, was admitted July 9, 1898.

As a child she was delicate. She had pneumonia several times; menstruated at 11; suffered from an attack of peritonitis as a child. From 23 to 28 years she suffered from dyspepsia, since then from constipation. At the ages of 24 and 25 she suffered from cholera morbus during the summer for a week at a time, and about three years ago from intestinal obstruction. She was confined to bed for two months, then she slowly improved, until one year ago, when she seemed quite well. Shortly after this she suffered from pain in the region of the appendix and from nausea and vomiting. Nine months ago she had a similar attack, confining her to bed for six weeks. Since then she has improved slowly, having several slight attacks of a similar character but less severe, and lasting only a few days at a time.

Her present condition shows her to be about twenty pounds below average weight; her tongue is coated; her appetite fair; starches and carbohydrates cause eructations. She suffers from nausea occasionally; is constipated; lungs, heart and kidneys are normal. There is tenderness over the appendix and right ovary, and a swelling the size of a small hen's egg

is perceptible upon digital examination, in region of right ovary and tube.

Diagnosis.—Recurrent appendicitis with secondary infection of right ovary and tube.

Laparotomy showed the proximal end of the appendix obliterated, the latter being the size of a thumb, thoroughly distended with mucus. The Fallopian tube was in precisely the same condition, being about twice the size of the appendix, perfectly closed at both ends and filled with the same material. The appendix, ovary and tube were surrounded by a mass of adhesions.

CASE 10.—No. 5145, Mrs. F. P., 25 years of age, was admitted to hospital July 11, 1898.

The patient enjoyed good health until shortly after her marriage, three years ago, when she began to suffer from severe pain in the region of both ovaries and tubes. Two and a half years ago she had a severe attack of peritonitis, resulting in a large pelvic abscess, from which over a quart of extremely fetid pus was evacuated by a vaginal incision. Drainage was established, and the patient became apparently well until ten months ago, when the abscess refilled and was again evacuated in the same manner, again apparently resulting in recovery.

Her present condition shows her to be badly nourished; tongue thickly coated; appetite poor; constipated; pulse normal; menstruation regular but painful and too profuse; heart and lungs normal; urine contains blood, pus and albumin, is strongly acid, is loaded with urates, and has a specific gravity of 1030. Pain and tenderness exist in the right inguinal region. Bimanual examination shows presence of an inflammatory mass in the right inguinal region.

Diagnosis.—Pyosalpinx probably implicating appendix.

A laparotomy demonstrated the right tube to be distended to the size of three fingers and closed at both ends; the appendix is constricted but not completely obstructed at proximal end, and contains large fecal stone also mucus and detritus. The appendix, ovary and tube are adherent to each other as well as to omentum and cecum.

CASE 11.—No. 5235, Mrs. M. L., aged 31 years, entered the hospital August 8, 1898.

The patient had the usual children's diseases, but does not remember having been severely ill. She had suffered from indigestion and constipation for a long time—cannot tell how long. For several years she has had a heavy feeling in the region of the appendix, which became quite painful at times. Six months ago, immediately after her confinement, she suffered from acute pain in the right inguinal region. At this time she had a slight chill followed by a little fever. This became more diffuse, but later again circumscribed. There is now a constant dragging pain in the right inguinal region. The right thigh cannot be fully extended without pain. This condition has not changed during the past month.

Her present condition is that of a poorly nourished woman, anemic, with tongue coated, appetite insufficient, bowels constipated, pulse weak. There is tenderness upon pressure in the right inguinal region. Bimanual examination determines a small mass in the region of the right Fallopian tube, but extending up too high to be confined to that organ.

Diagnosis.—Doubtful, probably recurrent catarrhal appendicitis with secondary infection of tube and ovary.

Laparotomy disclosed a small mass in the right inguinal region bound together by strong adhesions, containing a club-shaped appendix which had at one time been perforated, an ovary covered with connective tissue and containing several small cysts, the largest the size of a hen's egg, and the right tube ¾ of an inch in diameter closed at both ends and containing a clear fluid.

CASE 12.—No. 5453, Miss E. W., 21 years of age, was admitted October 4, 1898.

She had the usual diseases of childhood, but has otherwise been well. Menstruation began at 16, being regular but very painful, especially on the right side. About a year ago patient experienced pain and tenderness in the right inguinal region, which has persisted ever since. Four months ago a sudden exacerbation compelled her to remain in bed for three weeks. At this time she suffered from severe pain, chills and fever. Nine weeks ago she suddenly experienced the same symptoms, together with vomiting. For three weeks she has been better.

Her present condition shows her to be well nourished; tongue clean; appetite good; bowels regular; heart, lungs and kidneys normal; moderate bilateral enlargement of thyroid gland; abdominal walls thick; pain and tenderness over McBurney's point; no abnormal dulness. Vaginal examination is negative except for tenderness in region of right ovary and tube; no accumulation; no perceptible enlargement.

Diagnosis.—Recurrent appendicitis, possibly involving right ovary and tube.

Laparotomy demonstrated the following conditions: The distal half of the appendix was completely destroyed by an inflammation, evidently many years past, and not determined in the history; the proximal half the size of a thumb, in an inflamed condition, the walls being greatly thickened. An adhesion extended from the end of the obliterated appendix in the direction of the right ovary, which was covered with cicatricial tissue. The right Fallopian tube was very tortuous and severely congested, both ovary and tube having evidently suffered as a result of secondary infection from the inflamed appendix.

CASE 13.—No. 5458, Miss D. F., aged 28 years, entered the hospital October 5, 1898.

The patient was healthy until 13 years of age, when she suffered from what was supposed to be typhoid fever. She is said to have had a very sudden attack of the fever, with severe pain over the entire abdomen, later confined to the right inguinal region. She vomited, had intestinal obstruction and in fact all the symptoms of a gangrenous appendicitis wrongly diagnosed as typhoid fever. Since this time the patient has never been well, has constantly suffered from indigestion, constipation, severe dysmenorrhea and general abdominal pains. She is now a confirmed invalid.

Her present condition shows her to be badly nourished; her facial expression is that of a patient who has suffered severely for years; her heart is normal but rather weak, respiration is shallow, kidneys normal; pain and tenderness over entire abdomen but especially over appendix and right ovary.

Diagnosis.—Adhesions following extensive peritonitis due to appendicitis.

Laparotomy demonstrated only the proximal portion of the appendix as present, held down by strong, old adhesions, the distal portion being recognizable as a band of connective tissue. The right tube is club-shaped and adherent to the ovary and remnant of the appendix by means of strong, old adhesions.

CASE 14.—No. 5534, Miss R. P., aged 24 years, was admitted Oct. 30, 1898.

She was always unusually vigorous and well, and able to work until six months ago, when she suddenly experienced an excruciating pain in the region of the appendix, followed by severe tenderness in the entire abdomen, which later became confined to the right inguinal region. She was nauseated, and the pain was so severe that morphin had to be used hypodermically to secure relief. Since this time each menstrual period has been very painful, and she has suffered from two acute attacks since the first one. The last attack, which occurred a week ago, was especially severe.

Her present condition is that of a fairly nourished young woman, normal in every resepect except that she suffers from pain in the right inguinal region, which is increased upon pressure. The abdominal walls are tense, and the right hip cannot be fully extended without giving rise to pain.

Diagnosis.—Recurrent appendicitis, probably involving the right ovary and tube, on account of the increased pain present during menstruation.

Laparotomy demonstrated the appendix to be constricted near its middle and bound down at this point by a strong adhesion, which evidently existed for a considerable time. The distal end contained mucus and detritus and was considerably distended. The right ovary and tube were severely congested, and the right tube quite tortuous.

CASE 15.—No. 5535, Miss J. A., 24 years of age, was admitted to the hospital Oct. 30, 1898.

She had children's diseases, but was otherwise strong and healthy, having spent her youth on a farm. Menstruation began at 15, being regular and normal. Three years ago she first experienced dull pain in the right inguinal region; about the same time she began to suffer frequently from nausea. From this time on she has felt some pain in this region during each menstrual period. This has increased very greatly during the past year, so that she scarcely recovers now from the effects of one period before the next one begins. Her former vigorous appearance has disappeared, and she has now the look of an invalid.

Her present condition is that of a fairly well nourished, strongly built young woman; tongue coated; appetite not satisfactory; bowels constipated, heart, lungs and kidneys normal; complains of pain in right inguinal region, which is considerably increased upon pressure. She has received local treatment of uterus. The right ovary is tender, but not perceptibly enlarged.

Diagnosis.—Chronic catarrhal appendicitis.

Laparotomy disclosed that the appendix contained several concretions, varying in size from a grape seed to an orange seed. The mucous membrane showed a catarrhal inflammation. The right ovary was found in a condition indicating chronic inflammation.

TABLE OF APPENDICITIS CASES OPERATED AT AUGUSTANA HOSPITAL DURING THE YEAR 1898.

I. Children 15 years of age and younger; five boys, six girls.

No.	Record No.	Date of Admission.	Age.	Diagnosis.	Condition found during operation.
1	4612	Feb. 8..	14	External fistula, appendiceal abscess	Perforated appendix communicating with fistula.
2	4896	Apr. 28.	15	Recurrent appendicitis, four attacks	Greatly thickened suppurating appendix, old adhesions.
3	4912	May 4.	15	Recurrent appendicitis, acute attack	Strongly adherent appendix, abscess at extremity.
4	5374	Sept. 13..	8	Recurrent appendicitis, second attack	Perforated appendix containing concretions, abscess.
5	5555	Nov. 6.	4	Acute perforative appendicitis	Gangrenous appendix about to perforate.
1	4825	April 8.	12	Recurrent perforative appendicitis	Gangrenous perforated appendix.
2	5234	Aug. 7..	11	Perforative appendicitis, diffuse peritonitis	Gangrenous perforated appendix, general peritonitis.
3	5305	Aug. 29.	8	Perforative appendicitis, large abscess	Gangrenous perforated appendix, large circumscribed abscess.
4	5392	Sept. 18..	11	Perforative appendicitis	Gangrenous perforated appendix containing many concretions.
5	5488	Oct. 16..	13	Recurrent appendicitis, mild attack	Adherent club shaped appendix, constrictions, abscess in end.
6	5523	Oct. 26..	10	Perforative appendicitis, abscess	Perforated gangrenous appendix, circumscribed abscess.
				II. Adults suffering from appendicitis uncomplicated; thirty-four males, thirty females.	
1	4495	Jan. 4.	28	Recurrent appendicitis, five years	Strong adhesions to omentum and cecum partly obliterated.
2	4535	Jan. 16	31	Recurrent appendicitis, acute attack	Catarrhal appendix, adhesions, appendix contains concretions.
3	4658	Feb. 22	44	Recurrent appendicitis, in interval	Appendicitis obliterans, adhesions.
4	4684	March 3.	35	Recurrent appendicitis, violent acute attack	Gangrenous perforated appendix, diffuse peritonitis.
5	4724	March 14.	35	Chronic appendicitis	Tubercular appendicitis.
6	4845	Apr. 14.	36	Recurrent appendicitis, acute attack	Appendicitis obliterans, abscess in end.
7	4895	Apr. 28..	18	Acute perforative appendicitis	Perforated gangrenous appendicitis, abscess in pelvis.
8	4902	May 1..	29	Acute perforative appendicitis	Perforated gangrenous appendix, abscess retrocecal.
9	4932	May 10.	35	Acute recurrent appendicitis	Catarrhal appendicitis, fecal concretions.
10	4952	May 15.	30	Acute perforative appendicitis	Gangrenous perforated appendix, general peritonitis.
11	4991	May 29.	24	Recurrent appendicitis, in interval	Adherent club-shaped appendix, had been perforated.
12	5062	June 20	28	Recurrent appendicitis	Adherent appendix, obliterates lumen proximal end.
13	5071	June 22	17	Recurrent appendicitis	Appendix curled up snail-shaped, strongly adherent.
14	5083	June 25	28	Hernia following incision for appendicitis operation	Adherent appendix, scar in place of gangrenous portion.
15	5112	July 3..	20	Recurrent appendicitis, gangrenous appendix	Gangrenous appendix, about to perforate.
16	5141	July 10.	28	Chronic appendicitis, ten weeks	Gangrenous appendix, leaving scar tissue and abscess.
17	5143	July 10.	28	Recurrent appendicitis	Partly obstructed appendix with large stone.
18	5179	July 19	27	Acute appendicitis, fulminating	Acute suppurative appendix, not circumscribed.
19	5182	July 21	23	Recurrent appendicitis, in interval	Partly obliterated, club-shaped appendix, enteroliths.
20	5192	July 26	24	Recurrent appendicitis, in interval	Partly obliterated, club-shaped appendix, enteroliths.
21	5198	July 25	22	Acute suppurative appendicitis	Severely congested adherent appendix, quantity free fluid in abdomen.
22	5201	July 27	27	Acute perforative appendicitis, intest. and obstruct.	Perforated gangrenous appendix, general peritonitis.
23	5227	Aug. 4	33	Acute perforative appendicitis	Perforated gangrenous appendix, circumscribed abscess.
24	5279	Aug. 21	33	Recurrent appendicitis, acute	Perforated gangrenous appendix, circumscribed abscess.
25	5413	Sept. 25	18	Recurrent acute attack, catarrhal	Severely congested appendix distended with mucus.
26	5424	Sept. 27	32	Recurrent appendicitis, third attack in one month	Cicatricial construction, foreign body.
27	5466	Oct. 6..	47	Recurrent appendicitis, obliterans	Club-shaped appendix totally obstructed, large foreign body.
28	5492	Oct. 17.	22	Perforative appendicitis, gangrenous peritonitis	Extensive adhesions, general peritonitis.
29	5539	Nov. 1..	30	Traumatic chronic appendicitis	Strongly adherent partly obliterated appendix.
30	5542	Nov. 2.	44	Acute peritonits, strangulated hernia	Perforated appendix, cecum and omentum in inguinal hernia.
31	5626	Dec. 1.	26	Recurrent appendicitis, acute attack	Adherent appendix, abscess in distal end.
32	5650	Dec. 11	28	Chronic appendicitis	Adherent appendix, cicatricial thickening, abscess in end.
33	5687	Dec. 27	21	Recurrent appendicitis, in interval	Adherent club-shaped appendix, had been perforated.
34	4891	Apr. 28.	25	Recurrent appendicitis, in interval	Adherent club-shaped appendix, obliterans, abscess in end.
1	4403	Jan. 4..	56	Recurrent appendicitis, in interval	Adherent club-shaped appendix, fecal concretions.
2	4581	Feb. 13	19	Recurrent appendicitis, acute attack	Adherent appendix containing abscess and concretions.
3	4645	Feb. 17.	28	Recurrent appendicitis, chronic, in interval	Adherent snail shaped appendix, cicatricial constrictions.
4	4678	March 1.	17	Acute perforative appendicitis	Gangrenous perforated appendix, abscess.
5	4739	March 17	24	Recurrent appendicitis, acute attack	Adhesions causing partial strangulation of appendix.
6	4775	March 25.	36	Acute appendicitis	Perforated appendix surrounded with fibrous exudate.
7	4840	Apr. 12	39	Acute appendicitis, perforative	Perforated appendix, abscess containing concretions.
8	4865	Apr. 19	36	Chronic appendicitis, acute exacerbation.	Strongly adherent appendix with acute abscess.
9	4911	May 3..	21	Recurrent appendicitis, convalescent	Adherent appendicitis obliterans.
10	4956	May 18.	30	Acute perforative appendicitis	Perforated gangrenous appendix.
11	4966	May 22	40	Chronic appendicitis	Adherent appendix, mucosa ulcerated and cicatricial.
12	4988	May 28.	62	Adhesions following appendicitis	Strongly adherent, partly obliterated appendix.
13	5037	June 10.	23	Recurrent appendicitis, during interval	Adherent appendix partly obliterated, contains concretions.
14	5068	June 20.	20	Recurrent appendicitis, during interval	Adherent appendix partly obliterated, contains concretions.
15	5070	June 21.	58	Perforative appendicitis, acute	Gangrenous perforated appendix, surrounded with omentum.
16	5089	June 28.	41	Chronic appendicitis, interval	Strongly adherent appendix, had extensive peritonitis.
17	5082	June 26.	38	Chronic appendicitis, interval	Strongly adherent appendix, obliterans abscess in end.
18	5154	July 12.	40	Chronic appendicitis, interval	Strongly adherent appendix, cicatricial contractions.
19	5165	July 14.	20	Recurrent appendicitis, interval	Club-shaped adherent appendix, cicatricial contractions.
20	5169	July 20.	18	Acute perforative appendicitis	Club-shaped adherent appendix with abscess.
21	5176	July 20.	49	Adhesions following appendicitis	Strongly adherent appendix, fecal concretions.
22	5206	July 28.	33	Chronic appendicitis, interval	Adherent appendix, cicatricial constrictions.
23	5212	July 31.	34	Chronic appendicitis, recurrent	Adherent club-shaped appendix, concretions.
24	5248	Aug. 14.	55	Tubercular peritonitis	Tubercular appendix.
25	5258	Aug. 16.	20	Recurrent appendicitis, acute attack	Severely congested appendix, containing mucus.
26	5269	Aug. 18.	25	Recurrent appendicitis, in interval	Strongly adherent club-shaped appendix.
27	5299	Aug. 26.	17	Intestinal obstruction following app. operation	Adhesions causing volvulus of ilium.
28	5411	Sept. 25.	39	Chronic recurrent appendicitis, interval	Partly obstructed lumen, large incarcerated enterolith.
29	5619	Nov. 29.	24	Acute septic appendicitis	Severely congested acutely inflamed appendix.
30	5663	Dec. 18.	21	Recurrent appendicitis, acute perforative	Perforated gangrenous appendix, abscess.
				III. Appendicitis with secondary infection of adnexa; fifteen casses.	
1	4677	March 1.	16	Recurrent appendicitis, acute attack	Perforated appendix, adherent to right ovary and tube.
2	4679	March 1.	20	Recurrent catarrhal appendix	Severely congested right ovary and appendix containing stone.
3	4716	March 12	21	Pyosalpinx, recurrent appendicitis	Abscess involving appendix, right ovary and tube.
4	4766	March 24	26	Recurrent appendicitis	Appendix strongly adherent, evidence of perforation, adhesions involving right ovary.
5	4794	Apr. 3.	26	Recurrent appencicitis	Appendix strongly adherent, club-shaped, distal extremity cicatricial, infected right ovary.
6	4823	Apr. 7.	38	Recurrent app., implicating r. ovary and tube	Constricted distorted appendix, inflamed adherent cystic ovary and tube.
7	4950	May 15.	23	Chronic catarrhal appendicitis	Long appendix containing concretions, adherent to ovary and tube.
8	4989	May 28.	33	Pelvic abscess, probably tubal	Acute appendicitis with infected ovarian cyst.
9	5137	July 9.	32	Recurrent appendicitis, a secondary pyosalpinx	Appendicitis obliterans, secondary hydrosalpinx.
10	5145	July 11.	25	Pyosalpinx, implicating appendix	Constricted appendix, containing detritus and secondary pyosalpinx.
11	5235	Aug. 8.	31	Chronic catarrhal appendicitis	Appendicitis obliterans, secondary infection of right ovary and tube.
12	5453	Oct. 4..	21	Recurrent appendicitis	Chronic recurrent appendicitis, secondary ovaritis and salpingitis.
13	5458	Oct. 5.	28	Adhesions following appendicitis	Chronic recurrent appendicitis, secondary ovaritis and salpingitis.
14	5235	Oct. 20.	24	Recurrent appendicitis, secondary ovaritis, salpingitis.	Constricted adherent appendix containing detritis, secondary ovaritis and salpingitis
15	5535	Oct. 30.	34	Catarrhal appendicitis	Catarrhal appendicitis, concretions, chronic ovaritis.
				Patients suffering primarily from inflammation of adnexa and secondarily from appendicitis.	
1	4531	Jan. 12..	32	Pyosalpinx	Hydrosalpinx, cystic ovary, adherent appendix.
2	4762	March 22	27	Pyosalpinx	Suppurating ovarian cyst involving appendix.
3	4811	Apr. 5.	45	Chronic appendicitis	Salpingitis, adhesions of ovary, tube and appendix.
4	4830	Apr. 10.	37	Peritoneal adhesions after abortion	Salpingitis, adhesions of ovary, tube and appendix.
5	4916	May 5.	23	Pyosalpinx	Pyosalpix with adhesions of appendix.
6	4940	May 12.	26	Ovaritis	Gonorrheal infection both ovaries, tubes and appendix.
7	4943	May 14.	27	Pyosalpinx	Double pyosalpinx involving appendix.
8	4951	May 15.	32	Pyosalpinx	Suppurating ovarian cyst involving appendix.
9	5067	June 21	34	Pyosalpinx	Double pyosalpinx involving fecal concretions.
10	5325	Sept. 4.	40	Pyosalpinx, chronic appendicitis	Double pyosalpinx involving fecal concretions.
11	5423	Sept. 27.	26	Salpingitis	Salpingitis right side, catarrhal appendicitis.
12	5454	Oct. 4..	24	Salpingitis	Adherent right ovary, tubes and appendix.
13	5590	Nov. 22	35	Pyosalpinx	Double pyosalpinx involving appendix.

A review of the histories from which I have constructed the accompanying table which represents 103 cases at the Augustana Hospital, in which I removed the appendix, for inflammatory disease, during the year 1898, will demonstrate the following significant facts: There were 90 patients suffering primarily from appendicitis and 13 in which the primary disease was either in the adnexæ, or both appendix and tubes were so extensively implicated that it was impossible to determine the primary seat of the inflammation. Of the patients suffering primarily from appendicitis, 39 were male and 51 female. Of the latter 36 suffered from appendicitis alone, and 15 suffered from appendicitis with a secondary involvement of the right ovary and tube. Eleven patients were under 15 years of age, and of these 5 were boys and 6 were girls. All the children suffered from acute attacks, with either gangrenous appendices or perforations.

Judging from this year's experience, as well as from my very much larger former observations, I am certain that the matter of secondary infection, especially of the right ovary and tube, has been very much underestimated. The following conclusions seem to be borne out by this experience:

1. Appendicitis frequently causes inflammatory diseases of the right ovary and tube, and occasionally the left side is also involved.

2. This condition is especially likely to give rise to chronic invalidism, because of the periodic exacerbation resulting from the congestion due to menstruation.

3. In operating for the relief of pyosalpinx, the condition of the appendix should always be determined.

4. In operating for chronic or recurrent appendicitis in patients suffering also from dysmenorrhea, the right ovary and tube should be examined.

5. If the pain is limited to the right side in severe dysmenorrhea, the appendix is frequently primarily involved.

6. In catarrhal appendicitis in which there is a fecal concretion in the appendix, or in appendicitis obliterans, the pain is frequently most severe during menstruation.

7. In patients who have recovered from gangrenous appendicitis there is frequently no further disturbance from the condition of the appendix, except the digestive disturbance due to adhesions, while the secondary disturbance in the ovary and Fallopian tube may continue to be very great.

8. In young girls suffering from dysmenorrhea the history should be followed very carefully, in order to determine the presence of a previous attack of appendicitis.

9. The fact that many of these cases are mistaken for salpingitis accounts for the theory that appendicitis is more common in men than in women.

[The foregoing is one of a series of six papers on Appendicitis. The discussion will follow the last paper of the series.]

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APPENDICEAL PUS.*

COMPLICATIONS AND SEQUELÆ.

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The experience of many years in treating the complications and sequelæ of appendiceal pus has led me to choose this subject as a proper and profitable one to bring to your notice, with the hope that both you and I may gain by the exchange of ideas and relation of experience. I am quite sure that many of you have seen and treated the various conditions which follow and complicate pus within the peritoneal cavity and, as a consequence, realize the peculiarly infectious and destrutive nature of that variety which owes its origin to appendicitis. And from essential conditions, the case cannot be different. We have in the appendix a narrow, muscular tube, filled with lymphoid tissue; it possesses a blood-supply from a terminal artery; it is deficient in drainage; it is always in more or less intimate contact with the peritoneum; it is undergoing retrograde metamorphosis; and, finally, it is inhabited both in health and in disease by that protean micro-organism—the bacillus coli communis. As anatomical factors, we have in the right iliac fossa, or at least within reach of the appendix, the cecum, the terminal portion of the ilium and the ileocecal valve, coils of intestine, the omentum, the right kidney and ureter, the iliac vessels, the mesenteric and portal veins, and the bladder; in the female, the uterus, tubes and ovaries; the hernial openings, and beyond all, a great mass of lymphatics. With such circumstances as these in juxtaposition it needs only the application of the torch of inflammatory action to produce the ravages which we must so frequently encounter when inflammation of the appendix has been allowed to reach its limits—if, indeed, it may be said to have any. Aided, let us suppose, by the mechanical, i. e., ulcerative effect of a coprolith within its canal, there takes place a rapid invasion of micro-organisms through the mucous, submucous, muscular and peritoneal coats of the appendix; there is thrombosis of the arterial vessels, with partial or complete gangrene followed by rupture, and abscess formation—or it may be a stricture of the canal taking place after ulceration, with a small quantity of pus penned up at distal end of the appendix—or there may be simple follicular ulceration of the mucous membrane lining the appendiceal lumen; yet, whatever the condition, it is a source of danger, either local or general or both, only in so far as it represents the toxic action of bacteria. And it is in this connection that to the colon bacillus must be ascribed supreme importance, for either virulent in itself or rendered so by the chemical products or indigestion or by those of other micro-organisms, or even associated with the micro-organisms themselves, it adds by its mere presence especial threat to both the exudate and to the pus resulting from appendicitis. Though in most instances it is the only bacterium present, in the earlier stages at least, yet the colon bacillus is often accompanied and assisted in its infectious action by the staphylococcus pyogenes aureus, by the streptococcus pyogenes, or by both, by the bacillus pyocyaneus and the bacillus prodigiosus, by the micrococcus lanceolatus and some others. I have seen astonishingly rapid suppuration and infection from the combined action of the bacillus coli communis and the streptococcus pyogenes, and equally severe results from the poisonous presence of the bacillus pyocyaneus alone; but, however, often in

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a long series of cases we may meet with the deleterious influence of the various individual bacteria, it is to be remembered, nevertheless, that the bacillus coli communis gives the characteristic feature to appendiceal inflammation and pus collections resulting therefrom; this feature consisting in great virulence and an especial aptitude for transmission and pyogenic action.

We have, then, in the appendix a structure easily susceptible to high-grade inflammation and consequent destruction, not only of its own tissues but also those of the various important abdominal viscera with which, by its various positions, it may be in more or less close contact. We have in appendiceal pus a substance possessing peculiarly poisonous properties; we have about the appendix lymphatics and blood-vessels for the absorption and transmission of the toxins and transplantation of the micro-organism causing, or developing from, appendiceal inflammation. This is a combination from which only the direct results can be rationally expected, and unfortunately our experience merely confirms such expectations; for this condition exceeds even the invasion of the female pelvic organs by gonococci in risk of life by local or constitutional danger.

Of all the complications of appendicitis, peritonitis, that dreadful disease which has and is to-day carrying many a human soul into eternity, stands foremost in frequency and mortality. Now, a more or less severe inflammation of the serous coat of the appendix is of common occurrence in many cases of appendicitis, and within certain limits, is rather beneficial than otherwise, by the formation of adhesions; but, when, from infection or from extension or by rupture, the general peritoneum becomes involved in a suppurative process, the outlook is indeed unfavorable, if not hopeless. I need not enter into an extended discussion of this complication, but I shall merely say that my experience in both its operative and palliative handling has led me to believe that general purulent peritonitis is not amenable to successful treatment. I am quite aware that "successful" cases have been reported, but in such instances there has always been a doubt in my mind as to the extent or character of the inflammation. The peritoneum is so large and so full of nooks and corners that I have always felt that some parts of it must have been free from infection, and certainly no man at an operation can make an examination sufficiently thorough to enable him to prove this statement false. Personally, I have never seen a case of *genuine general purulent peritonitis recover, and* this despite hydrogen peroxid, salt solution, opium, or salts, operation or "expectant" treatment the results were the same and I have come to the belief that, when certain of the diagnosis, this condition is an absolute contraindication to operation.

Secondary abscesses of the peritoneum, more or less localized by adhesions in the vicinity of the appendix or its site, are not infrequent and are of the same importance as the original pus collection.

I may here mention that constitutional septic infection intoxication resulting from absorption of the poisons elaborated in some appendiceal pus cases, resembles in some respects clinically the appearance of typhoid, and it may present considerable difficulty in diagnosis; pathologically there may be simple follicular ulceration of the mucosa of the appendix lumen, or stricture formation with a small retention abscess as it were; or lastly a pericecal or retrocecal abscess. In these instances septic or even true croupous pneumonia is especially apt to supervene and induce a rapidly fatal termination. And in these same septic states the occurrence of acute Bright's disease or acute endocarditis is by no means rare.

The hepatic complications arising from appendiceal pus are of extreme interest and importance. Thrombophlebitis of the mesenteric veins in a common enough process in appendix inflammation, and when we add to this a free anastomosis between these vessels and the radicles of the portal vein, the possibilities for infection of the hepatic structures by extension along the veins, or by septic emboli, are readily appreciated. Indeed, abscess of the liver, either single, or usually multiple, may so mask the symptoms of the primary affection that only by the post-mortem are we made aware of the pyogenic focus in the appendix. Formerly regarded as pathologic curiosities, pylephlebitis and hepatic abscess are now recognized as among the most to-be-feared complications of appendicitis—and this is not only in cases with large pus collections, but also in those apparently less severe conditions, with small ulcerative or gangrenous processes taking place within the mucosa of the appendix. Sometimes, as an extension of the liver abscess through the diaphragm or as processes depending upon septic emboli from the appendiceal pus, purulent pericarditis and particularly, purulent pleurisy, may result, which, unless relieved by operation, may rupture externally through the ribs or into the bronchial tubes. Several of such cases I have personally seen.

Of nature and formation similar to the hepatic abscesses are those multiple metastatic abscesses in the kidney, lungs, and spleen, which post-mortem records prove to be of daily occurrence in acute appendicitis with circumscribed pus collections; seen in those cases especially in which operation is postponed for the favorable "interval," or where the golden hours are allowed to slip by while waiting to actually demonstrate the presence of that poisonous pus which so often robs the patient of vitality and life itself.

Having mentioned now some of the most frequent and important complications of appendiceal pus more or less remote from the source of infection, let me consider briefly the more localized manifestation of the intense activity and destructive power of this substance. Here besides the blood, and lymphatic supply, several other factors play an essential part. First of all is the position of the appendix itself, the risk of life and to the neighboring structures evidently depending upon its direction and the part affected, the danger being greater when the tip of the appendix points toward the spleen; when it points into the pelvis—in which cases I emphasize that the pain may be left-sided; or when it curls up over the ascending colon, the danger being least when the appendix lies beneath the ascending colon or when it points west. In addition we must recognize the influence of gravity, the effect of the recumbent or upright position—as it may happen—and the anatomical relations of the peritoneum, coils of intestine, etc. Ulcerative and gangrenous processes are the natural effects of both the mechanical and bacterial action of the appendiceal pus. This is often observed in the omentum, considerable areas of which are found partially or completely necrotic, and require extreme caution in their operative manipulation. Depending upon the position of the appendix or the pus from it, we may have iliac phlebitis; phlebitis with thrombosis of the iliac vein, and consequent edema of the leg affected; or one iliac vein may be the seat of a local gangrenous action severe enough to perforate and cause fatal hemorrhage. By the same means appendiceal pus, or the appendix itself

may rupture into one of the hollow viscera, the intestines, the bladder, or the pelvis of the ureter, causing a probably incurable internal fistula; or rupture may take place through the abdominal wall with the formation of an external fistula. These complications are especially prone to occur when the tip of the appendix, in close relation to one of the above-named structures, becomes gangrenous and involves its attachments. When the appendix, postcecal and pointing north, is the seat of abscess formation it is not unusual to meet with enormous collections of pus extending far up toward the liver. These retrocecal abscesses are probably the most numerous, and fortunately can be handled with less risk to the peritoneum than any other variety. I have seen cases where the gall-bladder formed part of the confining wall of an appendiceal abscess with subsequent infection and necrosis, resulting in biliary fistula. When in such instances the infective process involves the post-peritoneal connective tissue, we have the so-called lumbar phlegmon. In fact, in the absence of lesions of the spinal column, it is probable that the idiopathic perinephritic abscess of former days was invariably due to the retroperitoneal extension and septic infection of an antecedent appendiceal pus collection.

Of appendiceal pus in hernial sacs and purulent appendicitis complicating or complicated by pregnancy, I shall make mention only in so far as to state that in my opinion neither offer contraindication to operation, as several successful cases testify. But I have left to the last, consideration of one particular of one aspect of this subject. I refer to the effect of appendiceal pus upon the pelvic structures, especially the reproductive organs of the female. When appendiceal pus occupies the pelvis it is usually the result of phlegmonous inflammation of an appendix pointing due south or southeast, of which merely the distal extremity, usually in close relation with one of the pelvic organs, is affected by an ulcerative or gangrenous process. The pain, as I have said, is commonly left-sided; the abscess formed is generally of only moderate size, so that there is more than the usual liability of confounding this condition with true pelvic disease, especially as adhesions are rapidly and solidly formed, confining the abscess along the sigmoid or the bladder, or between the two. The bladder wall and the sigmoid are often perforated, and two of the most distressing cases that have ever come under my care were of this character. One was a vesico-intestinal fistula in a young man from whom feces passed by the urethra; the other was a young girl with a similiar condition, through whose urethra flatus was expelled. From the standpoint of the gynecologist, such pelvic lesions are claimed to have their origin in tubal or ovarian disease, with secondary involvement of the appendix attached thereto; from the standpoint of the surgeon, the appendix is responsible for the primary affection and its complications, causing first an infective salpingitis with later involvement of the sigmoid or bladder or both. The surgical idea seems to me to be much the more rational, because such widespread pelvic lesions are particularly encountered in young women and girls in whom no history or sign of external infection can be obtained; 2, because of the greater virulence of appendiceal pus and its especial faculty of setting up purulent processes in other organs; and, 3, because the initial symptoms point rather to appendiceal than to ovarian or tubal disease. In these cases, too, I have been impressed by the fact that there is frequently a tuberculous family taint, but without demonstrable lesions in the patient, so that the underlying condition may be not only a diminished power of resistance to the influence of acute inflammation, but also, in some instances, at least, a mixed infection, dormant tuberculous elements being started into activity by fresh infection from appendiceal pus.

But whatever their etiology and precise formation, I would lay especial stress upon the clinical importance of these pelvic lesions in which both the ovaries and tubes, together with the appendix, are involved in phlegmonous inflammation. Surgically they offer difficulties that are at times insurmountable. The organs are covered by great quantities of exudate in which one or more smaller abscesses are to be found; dense adhesions are encountered which have so devitalized the attached organs that the slightest traction is liable to induce a rupture into the bladder or sigmoid. I have seen the pelvis practically one solid mass, and as if this were not enough, these adhesions have a particular tendency to recur beyond the power of human skill to prevent or even ameliorate. The most remarkable case of this character I have ever dealt with I shall briefly outline.

An attack of acute appendicitis in a young man was followed by apparent recovery without operation. Later his right chest filled with what aspiration indicated to be appendiceal pus; a rib was resected and he improved; this was probably a sub-diaphramatic abscess. Still later the sigmoid was perforated and the pelvic abscess further evacuated itself by the rectum.

As far as the sequelæ of appendiceal pus are concerned we have to deal principally with the effects of adhesive inflammation and with fistulæ; as the result of adhesions, we may, and often do, have intestinal obstruction, the bowel having twisted itself about a ribbon-like adhesion; or the obstruction may be due to the mere contraction of adherent coils of intestine, or to the constriction exercised by the contracting wall of an abscess, especially if this has not been radically dealt with. Frequently the omentum becomes attached to the parietal peritoneum and by its efforts to free itself, as well as by certain movements—coughing, deep inspiration, etc.—intense pain is caused. Indeed in some cases only slight adhesions are necessary to be the source of considerable trouble, though, naturally, intestinal obstruction is the danger most to be feared from their presence—a danger which even operation at times can merely diminish, but scarcely remove.

As for fistulæ, I have already some mention of those conditions, by no means rare, in which appendiceal pus ruptures into the hollow viscera, especially the cecum, ilium, sigmoid, bladder, ureter or Fallopian tube, constituting an internal fistula. Such communications, as you know, show small tendency to spontaneous cure, and the operations necessary for their relief are apt to be so severe and so fatal that we are often obliged to withhold any surgical interference whatever. External fistulæ, however, offer more promising results, the simple fecal variety, seen after operations for evacuation of appendiceal pus, often healing of their own accord within a few days. However, an unhealed abscess may underlie any simple external fistula, or the fistula may be in communication with the appendix, in which event removal of this organ is absolutely necessary to effect a cure.

Of fecal fistulæ two classes are commonly observed: 1, when the appendix connects with the sinus; 2, when the fistula is in communication with a part of the bowel—usually the cecum or ilium. Of these, the first variety is much the more favorable, a comparatively moderate operation sufficing for complete closure. But when the fistula involves the cecum, or ilium, a very extensive operation is required, which the weakened condition of the

person afflicted may render extremely dangerous, if not altogether impossible.

One, if not the most distressing, sequel of appendiceal abscess is a fecal fistula, the forerunner of which in not a few cases is practically an artificial anus. Can you imagine anything more capable of demoralizing, not only the patient, particularly if she be a young unmarried woman, but also the attending surgeon? When this follows the evacuation of an appendiceal abscess it usually occurs about the end of the first week. I know of nothing more distressing, not only to the patient, but the parents as well. The surgeon, too, is frequently held accountable for this terrible condition. I style it "terrible" for I know of no word that can better express it. It has fallen to the lot of the writer upon more than one occasion to account for this distressing condition, not only to the family, but their friends. In the majority of cases it is the result of a late operation we must admit, therefore why cry against the radical surgeon who practices, teaches, and begs his fellow surgeon to operate upon the advent of the initial appendiceal pain. While this is only one of the many arguments in favor of operative interference at the earliest possible moment, it alone is strong enough in the writer's opinion to influence any right thinking medical man that it is the only course of treatment to pursue.

I have apparently made a rather gruesome representation of the complications and sequelæ of appendiceal pus, but the picture has one virtue, it is an accurate one; for I have myself, together with every surgeon who operates in a fair proportion of such cases, met repeatedlly with just these conditions.

I repeat, appendicitis with pus formation produces ravages of the worst description; the effects are often permanent and irremediable, and in my experience unequaled by any other affection occurring within the abdominal cavity. For me, the lesson taught by the widespread, disastrous lesions of appendiceal pus was long ago learned, in fact, these very complications but accentuate the necessity of early operation to usher in that prevention which is indeed cure.

Would that my voice were strong enough to sound the note of warning against the presence of appendiceal pus, its ravages, etc., from the Atlantic to the Pacific and far beyond the everglades of Florida to the glaciers of Alaska.

[The foregoing is one of a series of six papers on Appendicitis. The discussion will follow the last paper of the series.]

ACCIDENTAL HEART MURMURS.*

THEIR CAUSES AND DIFFERENTIAL DIAGNOSIS.

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Every theory in physical diagnosis should be the realization, not the violation, of a physical law. Every theory in connection with the diagnosis of cardiac murmurs, to be enduring, must harmonize with the physical laws governing the mode of production, pitch, quality, intensity and conduction of sound.

It is the duty of the teacher to seek out and apply these laws and central essential truths, seeking particularly and insisting especially on those which are fundamental, at the same time giving due weight to those which are less palpable to ordinary observation and likely to escape indolent research, and to impress both upon those whom he addresses with every embellishment that can be furnished by his knowledge, and every weight, emphasis and adornment attainable by his power.

Before considering the causes of accidental murmurs, it may be well to indicate what is meant by this term and also to indicate the purpose of this paper.

Murmurs were formerly classified as organic and inorganic or as organic and functional; the latter being again subdivided into anemic or hemic, and dynamic. The anemic or hemic murmurs were supposed to originate in depraved blood states, while the dynamic were ascribed to irregular or perturbed action of the heart muscles, quite independent of any abnormality of the blood.

This classification is faulty and inaccurate. A so-called functional or anemic or hemic murmur may be present when there is no anemia, and when important blood changes are not demonstrable and where proof of any inco-ordination or perturbed action of heart muscles is wanting. A murmur may be classified as functional, when the purist may maintain that a functional disturbance is the result of a pathologic change. Such a classification commits us to too much, as, by its terms it indicates the pathology, which is not yet a matter of agreement or is not supported by the evidence.

The chief objection, however, lies in the fact that such a classification, besides being simply a cloak with which we cover up our want of knowledge of the subject, is a bar to progress. This objection may be urged against the term "accidental," but this can be said in its favor; it commits us to no theory of causation and places no impediment in the way of investigation.

This want of uniformity in terminology, and lack of unanimity of opinion regarding the cause of accidental heart murmurs is very confusing to both students and practitioners, tending to envelop the whole subject in so much confusion that both are likely to be led to believe that out of so much contradiction and chaos, it is impossible to evolve anything practical, and that an accurate diagnosis is impossible.

This paper is not written because of the hope or belief that I can add anything new to the subject, but simply to make a plea for simplicity and uniformity of terminology, to urge the recognition of the teachings of physical science, and to attempt to show that notwithstanding our hazy, nebulous, discordant views in regard to etiology and pathology, an accurate diagnosis is, in the majority of cases, comparatively easy; and lastly, to make a plea for more careful, painstaking accurate diagnosis, because we should be more careful in condemning patients to a life of mental misery, by a wrong diagnosis.

By accidental murmurs I mean all those murmurs not readily recognized and classified as organic, but formerly classified as functional, anemic, hemic, spanemic, dynamic, etc., and would suggest the following classification.

Murmurs	Endocardial	Organic	
		Accidental	
	Exocardial.	Friction Murmurs	

Before taking up the accidental murmurs, a few words should be said in regard to the cause of those designated as organic.

The first satisfactory explanation of the mode of production of murmurs was made by Corrigan. He showed that when the blood flows through a constricted opening into a normal channel beyond, or flows through a normal orifice into a widened channel, or regurgitates through an orifice normally closed by valves, vibrations are produced which may ultimately reach the ear as sounds.

Chauveau supported the views of Corrigan, extending

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his observations and clearly demonstrating their correctness, also proving that friction caused by roughening of the interior of the tube cannot originate a murmur, and has no influence on the production of sound.

Heynsius pointed out what is now generally accepted: that the murmurs have their origin in the fluid blood and are primarily vibrations in the blood itself, the vibrations being caused by the formation of Savart's "fluid veins." In other cases "eddies" are formed. The intensity and area of audibility seem to depend on the force of contraction, the quality probably depending on the rapidity of the vibrations. These vibrations are transmitted through intervening structures to the surface of the chest and may be perceived as sounds. These sounds are termed "murmurs," and are recognized as having a definite, physical cause.

It is quite generally conceded then, that organic disease is due to structural changes of a more or less permanent character, the theory being in accord with the teachings of physical science. It is quite otherwise with the accidental murmurs. Here theory, speculation and fancy have been allowed full sway, each writer or observer evolving his own pet theory accompanied by an argument more or less logical, attempting to explain the beauties of his own theory and expose the fallacies of others. The following are some of the advanced:

THEORIES OF CAUSATION OF ACCIDENTAL MURMURS.

1. The theory of Naunyn is that it is a murmur of mitral regurgitation, heard, not in the mitral area, but in the left second interspace outside the pulmonary area, just where the appendix of the left auricle comes up from behind, and as Walshe[1] pointed out, lies in contact with the chest wall, and in some cases may even cover the pulmonary artery. This is the theory to which Balfour[2] gives emphatic endorsement. He says: "Naunyn's explanation is the only one consistent with the facts and is now universally received[3]."

"Now we know that the so-called functional murmurs of both kinds—hemic and dynamic—depend upon the dilation of the heart, due to residual accumulation from imperfect discharge of its function, by a heart, unable through debility, to cope with the blood-pressure, which is either natural or only slightly raised."

Stengel[4] says of Naunyn's theory which Balfour advocates so warmly, "This view seems to be held by no one at the present time, and I refer to it only to express dissent."

Hoover[5] also dissents from this view and says very pertinently: "If genuine regurgitation were the cause of a murmur in this region, the physical principles of the transmission of sound demand that the murmur should be audible at the apex of the ventricle as well as over the appendix of the auricle." He is a follower of Potain and is inclined to classify most of the accidental murmurs as cardiopulmonary, although he distinctly states that he does not wish to be interpreted as classifying all so-called functional murmurs under this head. In support of the theory of Potain, he cites the experimental evidence of Francois-Franck, who discovered, while operating on a dog, that there was a systolic murmur audible over the heart. "Without opening the pleural cavity, he introduced a tenaculum through the thoracic pleura, and withdrew a tongue of lung from the anterior aspect of the heart. Directly the murmur ceased; but the murmur returned when the tongue of lung was permitted to reoccupy its former position."

Quincke[6] relates six cases in which there was a pulmonary murmur with perfectly sound hearts and arteries, the only abnormality being retraction of the lung from the base of the heart. He supposes that in these cases, the murmur is produced by the pressure of the heart upon the pulmonary artery during contraction, with formation of "fluid veins."

Russell and Hanford inclined to the view that the murmur heard in the pumonary area and outside of it is caused by pressure on the pulmonary artery by a dilated auricle.

Allbutt[7] says: "Arguments of weight seem to prove that these murmurs about the pulmonary orifice are not due to mitral regurgitation, as claimed by Balfour and Naunyn, and not due to pressure on the pulmonary artery, as claimed by Russell and Hanford."

Stengel[8] says that he is sure this is not the explanation and that the views of Naunyn and Balfour "are held by no one at the present time."

Potain[9] maintains that the murmurs of anemia are of cardiopulmonary origin.

M. H. Sonlier[10] maintains that inorganic murmurs are probably due to friction. He cites the experiment of placing the palm of the left hand over the left ear, and says that by scraping the back of the hand with the end of the finger in a rhythmical manner, a sound similar to a double cardiac murmur will be produced. He thinks that if the pericardium be dulled from any cause not necessarily inflammatory, a murmur may be induced. This is theorizing with a vengeance.

Thalma[11] calls attention to some experiments on dogs, made with a view of determining the influence of certain blood states. Oligemia was produced by bleeding, and hydremia by running warm saline solution into the femoral vein. He concludes that: 1, inorganic murmurs were rarely produced by oligemia; 2, hydremic plethora favored their production; 3, quinin produced a dilation of the heart with cardiac and arterial murmurs closely resembling those found in chlorosis; 4, infrequency of the heart's action, due to a marked filling of the cavities of the heart favored the development of murmurs.

At the meeting of the German Medical Congress in April, 1899, Dr. Winckler[12] of Vienna stated that sounds are sometimes heard over the mitral valve, for which no cause could be found post-mortem. This he attributed to a faulty action of the papillary muscle and a deficient insertion of the valve muscles. He impeded the action of the papillary muscles, and the post-mortem examination showed that he did not damage the valves. Both systolic and diastolic sounds continued to be heard, and mitral regurgitation occurred. He claims to have established a relationship between functional and organic mitral insufficiency.

Sansom[13] says, "I cannot doubt that a systolic murmur, heard at the apex of the heart in anemia indicates a veritable regurgitation. The audibility of the murmur at the back fulfills the requirements of all observers for an organic mitral regurgitant murmur." He says that he cannot subscribe to the views of Balfour, Naunyn, Hanford and Sehrwold, and that "no explanation of the systolic murmur heard over the site of the origin of the pulmonary artery can be satisfactory which does not recognize a nervous as well as a cardiovascular causation[14]."

He concludes that the arterial systolic murmurs are caused by a tremor of the conus just below the valves. He also says, "it seems quite possible that the valves themselves may vibrate in the current[15]. The pathogenesis is neuromuscular."

Osler[16], in speaking of the heart in chlorosis says that "a murmur may be heard at the base or at the apex." He refers to Balfour's explanation when the murmur is at the pulmonary region, but offers no opinion regarding it.

Russell proposes two explanations. He suggests that in some cases it might be produced by dilation of the left auricle, which, pressing upward upon the pulmonary artery, gives rise to a narrowing of its lumen; while in other cases it is simply the systolic murmur of tricuspid incompetence propagated upward to the conus arteriosis.

Gibson[17] formerly held to the opinions of his teacher, Balfour. He now repudiates his theories and states that he believes that Russell has disproved the theories of all observers previous to himself. Then he goes on to say that while Russell has disproved all previous theories, part of his own will not bear investigation. He also claims that Samson is "obviously in error." His own view here is that the systolic murmur heard in the pulmonary area is due to tricuspid incompetence, but admits that it is perfectly possible that for some of the cases, Hanford's explanation is plausible.

Anders[18] seems to favor the hemic origin of these murmurs. He says, "soft blowing murmurs of hemic origin are not infrequently heard over the carotid arteries—hemic murmurs at the base of the heart in pernicious anemia." Again he says, "Keihl's work shows the dependence of the valves for their complete closure upon a normal state of the different portions of the heart muscles." And again, "the special conditions rendering these murmurs audible are the great dilatation, softening of the papillary muscle and abscess near the valves."

Musser[19] says, "Anemic murmurs are generated at the pulmonary orifice or in the cone of the right ventricle." "Tricuspid and mitral valves often become relatively incompetent; mitral and tricuspid regurgitation ensues." "The vessels are dilated from artificial disease, the increased caliber favors a development of a murmur by the creation of a fluid vein." He also gives a classification of Drummond:

Functional	cardiohemic or anemic.
	cardiomuscular or neurotypic.
	cardiorespiratory.

Vierordt says in regard to these murmurs, "These are difficult of explanation. We think with others that the nature of the phenomena differs in different cases, and in many cases we apply Sahli's supposition that venous murmurs from the large veins in the thorax lie behind these heart murmurs."

Skoda[21] says concerning hemic murmurs: "The opinion that they rise through any particular condition of the blood is hypothetical," and speaking of the venous murmurs, he says, "I have for many years looked upon it as a sign, neither of a watery condition of the blood nor of anemia." It exists even in the young and healthy." He was also familiar with the fact that no sound is produced by friction between the blood and the vessel walls, and freely credits Hamernjk with having in 1847 called attention to this now well-known fact. Skoda also agrees with his explanation of the venous murmur: "The less the quantity of blood present in the vena cava, the more rapid will be the flow of blood through the jugular veins during inspiration, and the smaller the current of blood." "Now, the internal jugular vein is so attached at its lower part as of necessity to always retain a certain width; the diminished stream of blood can only fill this wide space by passing through it with an eddying movement." He also states that the conditions necessary for the production of the murmur exist only in the internal jugular veins, and in a much more perfect manner in the right than in the left. That he correctly appreciated the importance of what we now call fluid veins is shown by these words: "A murmur also arises, when a rapid current of blood is directed against blood that is quiescent, or moves less rapidly, or in a contrary direction."[22]

Whittier[23] classifies these murmurs as accidental, refers to the opinion of Sahli, who believes these murmurs are due to hydremia; to Durozies, who believes the venous murmurs may be conducted to the heart and simulate valve murmurs; also to the prize essay of Audeoud and Jacot-Descombes, who describe what they call a functional murmur of mitral stenosis in nervous irritable people affected with chloroanemia. These probably belong to the class so well described by Potain as cardiopulmonary, as do also the presystolic murmurs described by Flint and which led to the controversy between Drs. Flint and Balfour, the latter intimating that the former could not hear a murmur correctly. In regard to the cause, Whittaker says: "At the same time it must be admitted that many, perhaps most, accidental murmurs depend upon relaxation of the heart muscle, weakness of the papillary muscles, failure of adjustment of the orifice, producing or permitting a relative insufficiency with reflux of blood and eventually with some degree of dilatation."

Clifford Allbutt[24] calls attention to a lecture by Donald MacLain, published in 1882, in which he called attention to the diminution in size of the auriculo-ventricular orifice in complete, normal contraction, this being incomplete in muscular atony, in anemia, chlorosis, etc. In this connection it may not be amiss to recall the fact that Potain has shown experimentally that, post-mortem, the mitral valve will withstand an intraventricular pressure high enough to rupture the wall of the ventricle. On the other hand, the safety-valve" action of tricuspid valves is quite generally recognized. He says again, however, "I lean to the belief that the solution will be found in some altered relation between the blood and the walls of the vessels, especially the pulmonary artery and conus arterosis; so that an excessive vibration of the walls takes place," thus harmonizing with the views of the etiology of arterial and venous murmurs, which he believes to be due to "vibrations in the walls of veins, due to changes in the caliber of the tube at the root of the neck.

Inasmuch as these murmurs occur chiefly in chlorosis and other anemias any light on the actual condition of the heart in these conditions will be of aid in diagnosis.

Allbutt[25] says, in speaking of chlorosis: "The blood-vessels are slackened in tone, the beat is feeble and diffuse." "There is an increase of dullness to the right but not to the left." "The influence of respiration upon the murmurs is not constant."

Anders[26] says, "In chlorosis the heart is dilated." But he also says, "Murmurs are not rare and are not necessarily dependent upon dilatation."

Osler[27] says, in regard to the heart in chlorosis: "There is a slight increase in the transverse dulness."

Taylor[28] says: "The heart is dilated." "There may be fatty degeneration of the heart muscle." He also quotes the opinion of Goodheart, who says: "In the several conditions of anemia, the base of the pulmonary artery is morbidly dilated beyond the caliber of the orifice." Vierodt says: "The heart may be dilated." Musser says: "There may be dilatation, fatty degeneration or hypertrophy."

The next point to be established is the boundaries of the precordial space. In the adult, the right border of the area of complete flatness is at the left border of the sternum. The apex is in the fifth left intercostal space, two inches to the left of the sternum, or about one inch

inside the nipple line. In children, at birth and even up to 9 years of age, the apex is at or, in some cases outside, the nipple line. The apex limits the area of cardiac flatness on the left.

DIAGNOSIS.

The diagnosis of a case of organic disease of the heart is based upon the history of the case, together with an examination of the patient. The former usually reveals some antecedent disease, such as rheumatism, gonorrhea or some other infectious disease, the valvular lesion being recognized as a consequence, while the examination discloses certain constant pathologic changes, such as hypertrophy or dilatation or both, caused by the increased work of the heart, consequent upon the obstacle imposed to the onward flow of blood. In the diagnosis of a murmur we determine its character, rhythm, point of maximum intensity, direction of propagation, and area of audibility. Let us apply these methods in the investigation of the accidental murmurs.

History.—The history is that of the malady of which the murmur is at once the sign and consequence. It is that of chorea, some form of anemia, primary or secondary, some toxic condition, as alcoholism, wasting diseases, overexertion, as in young, untrained athletes or raw recruits, the febrile state, or after the loss of a considerable quantity of blood. The patient is more likely to be young than aged, and also to be of the female sex. Inspection confirms the history.

Palpation and Percussion.—These methods are of extreme value and should always precede auscultation. They show that the pulse corresponds well with the character of the cardiac impulse and is often of higher tension than would be expected, due, as Sansom believes, to the stimulation of vasomotor nerves by retained waste products. Thrills may sometimes be palpated. The cardiac impulse is commonly feeble and diffuse, the apex is not sharply defined and may be slightly out to the left, but not downward. There may be a slight increase in the dulness to the right, but there is wanting the pulsation and the impulse of a hypertrophied right ventricle at the lower end of the sternum. The left ventricle is not hypertrophied. In a word, there may in some cases be evidence of some dilatation, even of broken compensation, but not of hypertrophy, at least as a consequence of the disease of which the murmur is a sign.

Character of the Murmur.—It is usually soft and blowing, but may be harsh and rough, and is subject to considerable variation. It is claimed by some that it is influenced by posture, being louder in the recumbent posture, and thus contrasting with organic murmurs; also that it is louder during inspiration, and that sometimes it may be caused to disappear by holding the breath. Vascular murmurs may be associated with it.

Rhythm.—It is almost always systolic in time. The only exception is the one which is auricular systolic in rhythm and probably of caridopulmonary origin.

Point of Maximum Intensity.—An organic murmur usually corresponds to one of the cardiac areas, commonly as associated with it definite lesions of those valves whose normal sounds are heard in those areas, and which it either accompanies, replaces, obscures or follows. Accidental murmurs may be heard at any orifice or in any cardiac area, but usually at the base of the heart, and in the pulmonary area in the majority of cases.

Balfour emphasizes the statement that the murmur of pulmonary stenosis is heard with maximum intensity in the second left intercostal space, close to the sternum, while the accidental murmur is heard an inch outside of this, where Walshe claims that the auricle comes in contact with the chest wall.

Area of Audibility.—Here there seems to be the widest diversity of opinion. Some observers claim that these murmurs have a very limited area of audibility, while others, equally competent, maintain that they have a wide area of audibility. Thus Sansom[29] says: "They are sometimes loudest at the apex of the heart, conducted into the axilla and heard at the angle of the scapula." Mackenzie says, "It is remarkable how loud and harsh the murmurs sometimes are." Again Sansom says: "The murmur of anemia can answer to all the criteria of one due to regurgitation from organic causes." However, it seems generally conceded that the murmurs heard in the pulmonary area as well as in the aortic area are limited in their area of audibility, gradually fading away in the vessels.

DIFFERENTIAL DIAGNOSIS.

In the differential diagnosis, let us apply the method of exclusion. At the four cardiac openings, eight murmurs may be generated. They are either systolic or diastolic. Let us consider the latter first. A diastolic murmur is perhaps the rarest of accidental murmurs, and for practical purposes it needs only to be differentiated from mitral obstruction. This may lead to some confusion because of the fugacious character of the murmur. In organic disease, it occurs in early life, is caused by rheumatic endocarditis, is usually harsh, rough or purring in character, may be high in pitch and is abruptly terminated by a distinct shock, the ventricular impulse and the first sound; and there is a distinct interval of time between the murmur and the second sound. There may be all the evidence of broken compensation, with hemoptysis, hematemesis, and embolism.

The left auricle is hypertrophied, the right ventricle always shares in the cardiac changes, there may be palpable auricular impulse and thrill, suddenly terminated by the ventricular systole. The pulmonic second sound is accentuated. Arrhythmia is present late in the case, and ascites may be present. When this evidence is borne in mind, a diagnosis should present no difficulties. The accidental murmur of articular systolic rhythm is probably a cardiopulmonary murmur.

The second point in exclusion is that in any case in which it can be clearly demonstrated that holding the breath stops the murmur, we are justified in concluding that we are dealing with an accidental murmur. The latter do not modify the heart sounds. This leaves us for consideration only the systolic murmurs, viz: aortic stenosis and mitral regurgitation in the left side and tricuspid regurgitation and pulmonary stenosis in the right. Mitral and tricuspid stenosis are apical murmurs, while aortic and pulmonary stensosis are basal. Of course if a murmur is heard with maximum intensity at the base, we can exclude mitral and tricuspid regurgitation.

Aortic Stenosis.—The history is one of infectious disease, atheroma, or strain, commonly in adult or late life and of the male sex. The pulse may be small, the pressure sustained, and is in strange contrast with the powerful cardiac impulse. The apex is out to the left and down, the impulse is heaving and thrusting in character and usually well defined, the pulse tracing is characteristic, the enlargement is all confined to the left ventricle, the murmur is heard with maximum intensity at the aortic interspace, is often harsh and rough, may spread laterally, is the only murmur that may be audible at a distance, or that may be perceived by the patient. The murmur is always transmitted into the great vessels. With such a condition no confusion can possibly arise.

Pulmonary Stenosis.—This is one of the most common of congenital defects, and the rarest of acquired lesions. It is the most frequent site of accidental murmurs. When a congenital defect, there is a history of having been a "blue baby," there is some cyanosis, hypertrophy of the right heart, which may here take place without dilation, murmur and the characteristic physical signs.

In addition, "arrested development, bodily and intellectual, prominent eyes, thick lips, distended veins, enlarged liver, defective development of the genital organs, clubbed fingers, cyanosis, liability to epistaxis, hemoptysis, convulsions, headache, somnolence or insomnia." (Whittaker.)

There is a strong tendency or predisposition to pulmonary and general tuberculosis, only 15 to 20 per cent. reaching adult life (Sansom), this being in marked contrast with the comparative immunity conferred by most other valve lesions. In accordance with Pascal's law, the right ventricle is hypertrophied, and may be dilated as well. The degree of the dilation determines the character of compensation, and the latter the symptomatology. When pulmonary stenosis is acquired, and due to endocarditis, it is nearly always secondary to other valve lesions, and the history, symptoms and signs will be that of the antecedent disease and the consequent valve lesion, the last link being the affection at the pulmonary valves.

The murmur itself furnishes no clue. In differentiating between pulmonary stenosis and accidental murmur at the pulmonary area, consider the foregoing, and remember Bishop Butler's advice that "probability is the rule of life."

Tricuspid Regurgitation.—Tricuspid incompetence is now rightly regarded as the most common heart lesion, and the "safety valve" action described by King is quite generally accepted. It is also generally conceded that the tricuspid regurgitation is a relative insufficiency and beneficent in its action and results, saving the valves themselves from injury, and protecting the pulmonary blood-vessels from rupture, and not generally due to endocarditis of the right side of the heart. In these cases, resistance to the flow of blood through the lungs induces tension in the pulmonary artery, distension of the right auricle and ventricle, with incomplete closure of the right tricuspid valve. At each contraction of the right ventricle, instead of the blood flowing forward into the overcharged pulmonary artery, a portion of it flows backward into the auricle, the large veins become distended, the accumulation of the blood induces and is relieved by the tricuspid regurgitation. Tricuspid regurgitation follows disease of the left side of the heart, and especially of the mitral valves, as consequence upon cause. The history will be that of an affection of the mitral valves, an acute endocarditis, emphysema, bronchitis or overstrain, and the symptoms and signs of the latter will be present. Sibson says of it: "It is a friendly sign; it warns you of inflammation elsewhere and relieves the ill effects of that inflammation. It is a danger signal, and a brake lessening the mischief."

When tricuspid regurgitation follows left-sided disease of the heart, it must be dilated in order to permit the regurgitation and the signs will be those of dilatation with broken compensation. When due to an acute endocarditis, as of gonorrheal origin, the murmur is a mere incident and these cases need not concern us here. Likewise in chronic bronchitis and emphysema, the disease usually dominates the cardiac lesion.

The concurrent signs will depend on whether the case is one of acute endocarditis, relative insufficiency together with the cause of the latter; that is whether a pulmonary or mitral lesion.

In the latter the heart must be dilated in order that regurgitation be permitted. It follows therefore, that there will be the signs of that condition. The dulness is to the right of the base line, the apex is displaced, but the apex-beat cannot be felt, as the dilatation of the right ventricle prevents the left from coming anywhere near the chest wall. The cardiac impulse is diffuse and weak and will be best marked near the left sternal border. There may be systolic venous pulsation in the external jugulars and systolic venous pulsation of the liver. In regard to heart sounds, Balfour says: "The pulmonic second sound is always accentuated, as the increased pulmonary congestion which causes and maintains the regurgitation also keeps up the accentuation."

It should be mentioned in passing, that this is true in those due to relative insufficiency, but not true of those cases of acute endocarditis affecting the right side of the heart. In these cases, there is no accentuation of the pulmonic second sound. The symptoms will depend almost wholly on whether the case is of relative insufficiency or of acute endocarditis.

The murmur is systolic in time and heard best in the tricuspid area. An accidental murmur having the rhythm and point of maximum intensity of a tricuspid regurgitation, would exhibit a history of one of the conditions with which it is commonly associated, such as anemia, chlorosis, chorea, etc., there would be no antecedent conditions, such as pulmonary obstructions or mitral disease, and there are no consequent changes in the heart, with the exception already noted. It is the belief of many that this murmur of tricuspid regurgitation is the one heard in most cases of accidental murmur, when audible over the body of the heart.

Mitral Regurgitation.—This is the commonest form of valvular defect and is so familiar that a mere reference to it is sufficient.

The history of rheumatism, the hypertrophied and dilated right heart, the apex out but not down, the augmented impulse in the compensated cases, the accentuated pulmonic second sound, the apex systolic murmur with its wide area of audibility, all make up a clinical picture too familiar to need enlargement. And yet right here will be found one of the greatest difficulties. To positively distinguish between an accidental apex murmur with slight dilation of the right heart, and a slight organic lesion of the mitral valves with perfect compensation, is at times a matter of extreme difficulty and may occasionally be impossible. When an apex systolic murmur is present, together with a history of anemia, chlorosis, alcoholism, overexertion or the febrile state, with absence of history of rheumatism or other infection, characteristic appearance of anemia, want of increased relative value of the pulmonic second sound, absence of hypertrophy of the right heart, and with a fair pulse tension, we are justified in assuming that organic mitral regurgitation is absent.

In the febrile state especially, I have observed cases in which there was an apex systolic murmur, enlargement of the percussion flatness to the right, relative accentuation of the pulmonic second sound, the murmur having all the characteristics of quality, rhythm, point of maximum intensity and area of audibility of an organic murmur with compensation damaged, the impulse diffuse and weak, and I have seen these cases proceed to a perfect recovery and disappearance of the murmur, and I cannot escape the conviction that these are

cases of true relative insufficiency of the mitral valve, due to weakness of the myocardium, the auriculo-ventricular opening not being sufficiently contracted to allow the valve flaps to close, or else the distended walls cause enough tension on the chorda tendinæ to draw the edges of the flaps apart, preventing perfect closure, "retraction into the ventricle of the leaflets of the valves from dilation of the cavity, thus serving to increase the distance between the point of origin of the muscles and the normal meeting place of the leaflets of the valves."[30]

These are the cases of so-called curable mitral regurgitation. A correct diagnosis cannot always be made until the patient is cured.

CONCLUSIONS.

1. Accidental heart murmurs may occur when there is neither anemia nor fever, as in certain forms of intoxication.

2. Accentuation of the pulmonic second sound may occur in accidental heart murmurs.

3. An accidental murmur may be diastolic in rhythm.

4. The term "accidental" should be employed to designate all those cardiac murmurs which cannot, after careful examination, be clearly demonstrated to belong to the organic class, it being clearly understood that as our knowledge extends and increases, the number of "functional" maladies gradually diminishes. The latter term is simply a cloak which covers up our lack of knowledge. True, the same may be said of the term "accidental," and yet there is this to be said in its favor; it commits us to no theory of causation, indicates no pathology, avoids a discussion of the question whether functional disturbances occur without pathologic change, and above all, it erects no barrier in the way of progress.

5. While I do not believe that we are perfectly acquainted with all the physical conditions that can give origin to either cardiac or vascular murmurs, and while the error may be one of either observation or interpretation, I incline to the view that no single theory can be made to reasonably account for all accidental murmurs. I believe that there may be a relative insufficiency of either the mitral or the tricuspid valves, due to incomplete contraction of the heart, the latter due to degeneration, fatigue, or the effects of toxic agents, as in pyrexia, alcoholism, etc., and that under these circumstances, the murmur may not vary in any of its essential characteristics of quality, pitch and intensity or in point of maximum intensity and area of audibility, from regurgitation due to organic disease at the same orifice. The vibrations accord with physical laws. Tricuspid regurgitation is probably of much more frequent occurrence than mitral.

6. The theory of Potain in regard to cardiopulmonary murmurs seems a reasonable explanation of some of the accidental murmurs.

7. In all cases of organic disease, the vibrations originate in the fluid blood, due to the formation of "fluid veins." The theory that the accidental murmurs originate in vibrations in the walls of the vessels or of the conus, and are communicated to the moving column of fluid, and so not carried by it, does not seem quite reasonable but might serve to explain the limited area of audibility of some of these murmurs.

8. The wide diversity of opinion in regard to rhythm, point of maximum intensity and area of audibility would seem to indicate careful, accurate observations improperly interpreted or else an attempt to explain all accidental murmurs by one theory.

9. In many cases, especially of apex systolic murmurs, or in those heard over the body of the heart, a correct diagnosis cannot always be made without awaiting the results of treatment.

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THE UTERINE FIBROID.*

WHAT SHALL WE DO WITH IT?

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If brevity is the soul of wit, it is also the essence of propriety on occasions like the present, where there is so much to say and so many to say it. But before going any further I wish to say that I have allowed myself a little latitude of expression, which it will be readily understood is not intended to detract from the dignity, nor question the motives, of that class of the profession of which I am an honored member, but rather to emphasize the points which I desire to make conspicuous. The question which appears as a caption for this paper has been asked many times before and as frequently answered according to the light and spirit of the times. Years ago, when hysterectomy and its allied operations were little less than the equations of death, the answer was: "Let it alone," and there were few who had the temerity to take up the knife in the face of hostile opinion. Then came the apotheosis of abdominal surgery. Old methods were revived, new methods devised, the death-rate was scaled down. Down, down, down, went the death-rate until, it would seem, there was no longer need of circumspection. A sudden revulsion seized the profession and was communicated to the people. The cry now went up: "Exterminate, exterminate!" and our mothers, wives and sisters moved toward the operating-table. In every land and clime men stood at the table. A knife was in every hand; on each table a woman. There was neither noise nor turmoil, nevertheless the knife went in and lives went out. It was a silent and stupendous tragedy! But many survived, and in surviving regained more than life. It was a blessed and broadcast beneficence! It was neither, it was both, we shall see by and by. At this stage a fibroid tumor to the surgeon was as a red flag to a bull; large or small, lobulated or smooth, it was odious to his senses and the signal for a furious, uncompromising onslaught. A diligent search was instituted for the

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offender, and when one was found the unhappy possessor of it was doomed. From that moment her ears were assailed with the most harrowing and blood-curdling tales, and before her eyes a picture was held—a picture as black and revolting as ever came from the pencil of Doré, until at last the poor victim was fain to fly to the operating-table in sheer desperation.

This mighty crusade was not the offshoot of vice, neither did it betoken recklessness nor cupidity; it was the natural corollary of enthusiasm, an enthusiasm born of undreamed of success and grounded in the highest philanthropy. Was it a mistaken enthusiasm? Let us see: I give you two pictures taken from life. Mrs. P. discovers that she has a little menstrual disturbance, and being an intelligent woman, decides to call on Dr. X. for advice. Mrs. P. is a young matron of about four and thirty, and is the proud mother of two very interesting children. She has never had any sickness, in fact, has never been confined to her bed except at childbirth. She is well-formed, bright-eyed, rosy-cheeked, walks with a firm, elastic step, and enjoys a sense of perfect well-being. Dr. X. is a fashionable gynecologist, who commands a large following, does much surgery, and has an eye on the end of his index finger. In due time Mrs. P. is ushered into the cosy consulting-room and Dr. X proceeds to explore the pelvis with that ocular finger. Suddenly he rolls his eyes upward, and with an air of extreme gravity says: "Madam I am sorry to inform you that you have a fibroid growth in the womb." "Do you think so, doctor? The doctor smiles, but deigns no reply. "Excuse me, Dr. X, I did not intend to question your skill, but the fact is I have been so well and felt so well all my life that it is hard to believe that there is anything much wrong." "Is it of much consequence?" "Of the *utmost* consequence." "What will have to be done?" is the anxious query. "There is only one thing to do and that is to remove the uterus." "An operation? I will never consent." "Wait until you have heard me. You evidently do not understand the significance of a uterine fibroid. You are well now, but it will not be for long. Soon you will be having hemorrhages and these will grow in volume and in frequency. Soon you will begin to suffer from pressure symptoms, the growth will impinge on and injuriously affect the bladder and the bowels. It will also press upon the ducts that carry the secretion from the kidneys. Later it will affect the liver, kidneys and stomach. The kidneys will become diseased, the heart will become diseased, the brain and nervous system become implicated, and not infrequently melancholia and insanity follow in the wake. When once these organic changes take place in these important organs there will be no redemption." "I will never consent; if I am to die, I will die a natural death, but I will never have an operation." "Very well; I felt it my duty to lay the matter before you, and now you have a duty which you owe to yourself and family which, unfortunately, I can not assume. It will not be long until your eyes are opened, but I cannot promise you that it will be in time. You will be tortured with pain and drained of blood, and will become distorted and unsightly, you will be tormented with a discharge which will not only make life miserable, but place a barrier between yourself and husband, you will grow old and haggard——" She puts out a hand appealingly and simply says: "I will go," but her lips are compressed and the color has fled from her face. In one week from that day she lies on the table, beautiful in her sleep. A red line followed the knife over the gentle swell of a faultless abdomen and through the gaping wound the offending organ was removed. A little nodule not larger than a pigeon's egg marred the symmetry of an otherwise perfect specimen. In thirty-six hours there were two motherless children and a distracted husband. There was also desolation in one of the finest of homes. "Secondary hemorrhage" was the laconic inscription on the hospital card and the doctor took down his case-book and with a rueful face wrote in the result column a word of five letters.

But here is another picture. This time it is a woman of 43. She is not comely, whatever she may have been. She is the mother of three daughters—the eldest a girl of 20. They are poor. The patient is pale and almost cadaveric. She presents a marked abdominal protuberance. She spends much of her time in bed and has periods of flooding. In the intervals there is a profuse discharge of dirty serum. She has constant trouble with her bowels, is tormented with piles, and suffers much in many ways. Much of her little substance goes to the doctor, who, though poorly paid, is in almost constant attendance. She goes from bad to worse, though not continuously, for there are times when all the symptoms are abated. In one of these intervals she is induced to consult Dr. Y. Dr. Y. examines her in the presence of her family physician, and says: "Your doctor is right; this is a fibroid tumor. Furthermore it is of unusual size, is quite firmly impacted in the pelvis and is making serious inroads on your health." "But what am I to do; is there no help for me?" "I think there is. There are two roads open to us, either of which gives you a chance and both of which are attended with risk; one is to remove the growth, the other to leave it to Nature. In either event you will probably get rid of it, but, as I said, there is danger in both. On one hand you take the risks of a rather grave surgical operation, but should you survive you will be instantly and forever free from your affliction. On the other, if you should live until the change of life the growth will probably dwindle and in time cease to trouble you. But of this there is no absolute guarantee, and besides the change of life is often delayed by reason of the growth. It remains for you to choose." "I have chosen," she said composedly, "I want that thing taken away right off." A few weeks later, and just before the anticipated menstrual period, there was another table scene. Another red line followed the knife from epigastrium to pubis. A gaping wound disclosed an enormous distorted uterus. Deft fingers liberated adhesions, applied clamp and ligature, severed the attachments, and lifted out the mass. A month later this self-same woman returned to her home. The fires were bright on the hearthstone, but the fires of hope and joy and love were brighter in the hearts of that little group that gathered around it. A year later, and this poor, wan, suffering creature that we presented at the beginning has regained flesh and blood, health and good cheer and moved in and out among her family and friends, the happiest among them, for she had been in the depths and knew the value of life.

I cite one other case which gives us another phase of the subject. In this I shall use the first person, for there is neither that to be ashamed or proud of. The patient was a maiden lady of uncertain age, of magnificent physique and excellent mind. I found her with a fibroid of about the size of a pregnant uterus at the fourth month. I placed her on electricity, which I gave continuously and after the most approved method of the day. Despite this the tumor continued to enlarge; she had

a constant watery discharge and at intervals profuse hemorrhages. Besides, she suffered greatly from pressure symptoms. The tumor finally attained the dimensions of a seven-months pregnancy; all the symptoms became aggravated; she became exsanguinated, and of anxious countenance. I then suggested hysterectomy as the most feasible procedure, which she neither declined nor accepted, but continued to drift. She then passed out of my hands, but evidently went from bad to worse, as she was much of the time confined to her bed. After a few years she began to appear on the streets, and now she is taking an active part in club work, looks hale and hearty and has all the indications of perfect health.

What are the lessons inculcated by the illustrative cases just cited? We see in the first case the tragic taking off of a young and lovely woman, wife and mother through the overweening zeal of an overconfident gynecologist. In the next we witness the inestimable benefits from a timely operation in a bedridden woman whose social condition demanded immediate relief. In the last we are taught that even most unpromising cases may and do recover without operative interference. I claim that operative interference in cases like the first is unnecessary, unjustifiable and criminal. I am aware that in making this assertion I am stepping on somebody's corns, that some very good men take a very different view of the subject, and I am willing to accord to such honest convictions. But by far the larger number of the adherents to this policy is made up of beginners who are anxious to make a record and who are willing to take chances to further their ambitious designs. Last, there are a few, and I blush to speak of it, who are neither young nor inexperienced, who are neither wanting in skill nor intelligence, who recognize the unequal chances they are imposing on those entrusted to their charge, but who nevertheless enter the arena open-eyed and juggle with human life for the lucre there is in it. Of such is not the kingdom of heaven.

Specious arguments are adduced in favor of early interference.

It is claimed that the uterine fibroid is inherently dangerous; that aside from the distressing symptoms that attend pressure on contiguous organs, it leads to grave lesions of the kidneys, heart and brain; that the patient is in danger of fatal hemorrhage; that by sapping the vital powers it renders her an easy victim to intercurrent disease; that the fibroid growth is prone to degenerative changes and especially malignant degeneration; that it does not cease to take on growth at the menopause, but, on the contrary is apt to take on renewed vigor, and lastly, that the operation is attended with much less difficulty and danger in the earlier stages of its development. This would indeed be a specious, I might say unanswerable, argument if the premises were correct. In the first place, it cannot be shown that the uterine fibroid is naturally and inherently dangerous to life. If such cases were the cause the mortality from this cause in times agone must have been appalling. Kolb says that 40 per cent. of the women who die after the fiftieth year are found to have uterine fibroids. According to this from one-third to one-half of womankind attaining to the age of 55 years must have perished from this source. Fatal hemorrhage from a uterine fibroid is one of the rarest of rare occurrences. One of our authorities—I believe it is Skene—claims that it seldom if ever occurs. I have never seen a case. Of the complications from heart and kidneys we have few instances of death, indeed it is a rare thing to see a woman die from uterine fibroid. I have been in the practice of gynecology for many years, during which time I have had to deal with scores, yea hundreds, of cases of uterine fibroid in all stages and conditions, and I cannot now recall a single instance in which the victim succumbed to the growth or any condition attributable to the growth. Indeed, it has seemed to me that such patients enjoyed a peculiar immunity from life-destroying diseases. I have seen fearful hemorrhages, in which the patient was reduced to the last extremity, but she always rallied. I have witnessed mechanical obstruction to the bowels and bladder that threatened dire consequences, but in time they adjusted themselves, and the patient enjoyed a period of respite. I have seen the urine loaded with albumin, but have never known such to lead to a fatal issue. I have never seen one die of heart failure unless she had been on the operating-table. I have never attended one in whom death could be traced to malignant degeneration of the growth.

I did panhysterectomy for one case of enormous suppurating fibroid that must have inevitably died had she been left alone. I have removed several uterine fibroids that gave strong evidence of malignant degeneration, but these were rare as compared with the number of cases in which no such indications existed. I have seen very few cases in which the tumor continued to grow or showed increased activity after the menopause; on the contrary, I have seen many cases in which the retrogression was marked and continuous. I have seen many cases of smaller fibroids which never attained a size that gave the patient any concern. I have seen many others of various sizes that remained stationary throughout years of observation. On the whole, I have come to look on the uterine fibroid as comparatively innocent, in so far as its life-destroying propensities are concerned. I do not deny that it may, and sometimes does, kill. I do not deny that in its more aggravated forms it is capable of making life unbearable, but what I do contend for is that a very small proportion of the incipient fibroids ever attain to a size to give serious trouble, and that the growth is in a large measure self-limited. Were we to attempt to exterminate all the uterine fibroids lest they should grow and become complicated, we should have to unsex nearly one-half of womankind, and while we were doing this the tubal pathologist would demand the other half, and one generation would put a period to human existence. I do not know what the death-rate for hysterectomy is, but it must be vastly greater than that from the fibroid if left to itself. As a life-saving agency, therefore, we must abandon the knife except in rare and carefully selected cases. I am reminded that I held different views a few years since, and that in a paper read before the Mississippi Valley Medical Association at Detroit, I advocated a very different course. In reply I will say that the man who would not change his mind must cease to think. The changeless mind is the prerogative of fools and infallibility. But I have not changed so radically as might be supposed. I never advocated the removal of the unoffending fibroid. I did, however, go so far as to say that any fibroid that was a menace to life, health, or happiness should be removed. I do not retract that saying, but modify it. I have been in the practice of gynecology for many years, and have attempted to keep in touch with my fellow workers. I have read the same literature, discussed the same topics, have imbibed the same ideas, have been imbued with the same enthusiasm, have been actuated by the same aims and purposes. But I have also been in the same swim—

that turbulent, turmoil of waters that engages the whole soul and attention, that shuts out the horizon, the past and the future, and blinds the senses to all but that which is going on around one. In the midst of all a wail comes to my ears. It is the wail of a bereaved family, of husband and children. It is the wail of that family from whom was snatched in the full bloom of health one of the loveliest and most exemplary of wives and mothers. I pause, listen, think. I lift myself from the turbulent waters that I may collect my faculties, and now for the first time I get a bird's-eye view of the whole scene. If a man would see a battle he must not engage in it; rather must he withdraw himself to some commanding height where the eye can take a wide range. From this vantage-point I looked far backward into the remote past. I marshalled before me the hosts of women who had lived and died naturally despite the fact that many, very many, carried about with them uterine fibroids. I then cast my eye into the busy waters from which I had just extricated myself, and the words of Burns came to me:

> O wad some power the giftie gie us,
> To see oursel's as ithers see us.

What shall we say then; shall we lay aside the knife? By no means; in the future, as in the past, the surgeon's knife will continue to be afflicted woman's last and best friend. But the knife of the future must have a brain and a conscience behind it. What I contend for is greater circumspection and more conservatism on the part of the surgeon. Let the smaller and less mischievous growths alone. They may or may not give trouble in the future. Ten to one they will not, but if they should, it will be time enough to consider them when the exigency arises. Should you be called hence before that time, have no fear, for wisdom will not die with you, and the art of surgery will still survive. As you journey along life's path you will meet some cases, few though they be, which your judgment and experience will admonish you are inherently bad. In such it will be your privilege and your duty to urge and insist on radical measures. But in by far the larger number you will have no such assurance, and then you will be confronted with the ever-recurring question: "What shall we do with this uterine fibroid?" I hold that it is the patient's prerogative to decide. It is a right vested in the human race to incur risk for the betterment of condition. Men are continually taking such risks, and we regard them with complacency and commendation. They go down into the mines, climb steeples, grasp the throttle of the flying locomotive, toy with nitroglycerin, fight fire, brave the dangers of the deep, and in a thousand and one ways take their lives in their hands in order to better their condition or that of those dependent on them. Why, then, should woman be deprived of this same priceless privilege? Her sensibilities are more acute, her instincts stronger, her social relations closer, and her duties as imperative as those of man. But over and above all this, her capacity for loving and her yearning for love are beyond the comprehension of man, for with her love is the sum total of life. If, then, she finds herself a burden on those upon whom she is dependent; if life has become intolerable to herself and she feels that she is making it so for others; if by reason of deformity, irritability of temper, loathsome discharges, inability to perform her wifely duties, or any other cause, she finds that she has become a tax on her husband's forbearance or fortitude, then I say she has a right to choose, even though that choice carries with it a degree of personal danger. And she, having chosen, knowing the danger, it is your duty to give her the benefit of your experience and skill. The list will not be so long perhaps as under the present régime, but it will be long enough.

There is a wiser and better day coming, and succeeding generations will judge you by the light of that day. In that day your children or grandchildren will take up your musty old record-book and scan its pages. They will not appraise you according to the number of hysterectomies you have performed, but according to the character of your cases and the animus back of your work. Some will pore over long lists in which the cases mount into hundreds, but as they proceed their cheeks will burn, and should they hear an approaching footstep they will cover the page with their hand. There will be other lists, be they long or short, which will be studied with interest and pride, and when at length they are finished the musty old book will be carefully laid on the shelf and the reader will turn away with the half audible exclamation: "Bless his old soul; he was honest." And, when life's race is run and you enter the pearly gates, which all of you will, except a few of my competitors, you will meet many scarred bellies, some of which will bear your private mark. Happy will it be for you if, in glancing over the list charged up to you, you shall find opposite each name the verdict: "Justifiable homicide."

DISCUSSION.

DR. WALTER B. DORSETT, St. Louis Mo.—This paper covers a good deal of ground and represents some very vivid pictures which possibly all of us have seen, particularly one of the first drawn, of a beautiful woman and child taken away from her family. The second case related by the Doctor is a picture we have seen occasionally, one we appreciate after having done the operation described by him, and one which gives us a great deal of satisfaction.

This question of the indications for operation for fibroid tumors is one that I have approached very cautiously and steadily, and I think we may sum it up possibly under three headings: The first is hemorrhage, which, of course, includes the dirty discharge coming away from the patient all the time, and that class of cases that are anemic, that have lost great quantities of blood, those in which the tumor has been supplying the life-blood of the patient possibly for several years. The next indication is that of rapidity of growth. Rapidity of growth usually indicates malignancy; it indicates cystic degeneration, or it indicates carcinoma. The third indication is the general inconvenience of the patient, or general discomfort of a patient who is suffering from fibroid tumor; those in which the digestive apparatus has been interfered with; those in which patients are suffering more or less from ptomain poisoning on account of constipation due to the mechanical interference with the rectum and the bowels, and those in which adhesions are formed. Many of us possibly have seen those cases in which, whether the tumor be intramural or subperitoneal, we find masses of adhesions. In a case of subperitoneal growth we will find the tumor largely nourished by adhesions. I have, in a number of instances, particularly in those cases where electricity has been tried and has failed, seen large vessels coming off from the omentum through which the nourishment of the tumor was undoubtedly kept up.

DR. C. R. REED, Middleport, Ohio.—I consider the management of fibroid tumors one of the most important subjects that comes within the province of the gynecologist. When a small fibroid tumor is discovered in the pelvis of an otherwise healthy woman whose life is not endangered and who seems to be comfortable, I do not think it wise to urge operation for its removal, nor do I think it prudent for the physician to inform the woman that she has such a fibroid. There are many women who have small fibroid tumors and do not know it. I think it is wrong to tell them that they have fibroid tumors, because the majority of women, after having received such information from the physician, magnify the effects from these growths and claim that they suffer when they really do not. If left alone, nine out of ten of these cases will gradually disappear. Let me give an instance that came under my observation; a woman of middle age, in a fair degree of health, of somewhat neurotic temperament, but well nourished, complained of some obscure symptoms. I made a vaginal examination and discovered a small fibroid tumor about the

size of a small egg. I doubted whether it had anything to do with her nervous symptoms; still, I incautiously and wrongfully told her she had a fibroid tumor. I should not have done it. She immediately magnified her symptoms, and thought she was an invalid and in danger of dying from it. She consulted a prominent gynecologist, who examined her, and said to her, "Madame, you have a fibroid tumor." She asked him how large it was, and he replied, "About the size of a cocoanut," and added, "you will have to have it removed. You are in great danger, and after your next menstruation if you will come to my office, I will remove it for you." This was adding fuel to the fire. She was greatly depressed with the idea that she had to undergo an operation. She went to the hotel greatly depressed, and her husband said, "Let us consult Dr. Reed, we have known him for a long time. You have been under his treatment for your nervous symptoms." They did so, and I advised them to consult another practitioner, a man of great ability. This they did, and after a careful examination, he said, "Mrs. C., you have a fibroid tumor; it is as large as an orange, perhaps, or as large as the fist of a small hand; but it is not distressing or troubling you, and if you go to a hospital and rest for some time, you will go home better. Do not let this small tumor worry you." The woman said, "Doctor So-and-so told me that the tumor was as large as a cocoanut, and advised me to have it removed." "Well," said the physician, "he is an operative gynecologist, and that is his business. You might expect such advice from him." The physician told her that he had known fifteen or twenty women who had had fibroid tumors, some of whom were operated upon, and died, and some of whom were not operated upon, and are still living. However, the woman went to the hospital, remained there for two weeks, and then came home. She has not been sick a day since. This was five years ago. She is now the picture of health. She has her opinion of those two physicians.

I have known cases similar to the one mentioned and which have come under my observation during the last twenty-five years, and the women have enjoyed a fair degree of health and are living yet.

The paper covers the ground very thoroughly; it is admirable. I wish to repeat that, when we discover a small fibroid tumor, and a woman does not know that she has it, it is our duty not to let her know it. She will be better for it; she will enjoy life better as long as the tumor is not menacing her health.

DR. W. A. TICHENOR, Chicago.—I have not very much to say with reference to this paper except to commend it. I think the Doctor has struck the keynote in outlining the cases that should, and those that should not, be operated on. I am free to confess that a number of cases have been operated on for the removal of fibroid tumors in which the entire uterus was extirpated, and, in all probability, in the present light of advanced surgery, they would have done just as well had they not undergone surgical operation. We all know that three or four years ago there was a craze for operating, but the pendulum is swinging back the other way, and we are occupied with a happy medium. We are learning better what to do, and we are acting accordingly. The Doctor spoke of the class of cases that should be operated upon, and clearly outlined the class of tumors that need hysterectomy. I do not believe he referred to myomectomy. I do not really know how many are doing that operation, but I do not believe it will become a very popular operative procedure. Tumors suitable for myomectomy are those the size of a hickory nut, a hazel nut, or a small orange, and are usually intramural or subperitoneal. They can be shelled out through the vagina. These tumors push their way from beneath the peritoneal covering of the uterus, and as soon as they get out from the uterine wall they carry the peritoneum with them. The indications for operating on intramural subperitoneal fibroids are pressure symptoms on the bladder or rectum, or hemorrhage. This character of tumor, on account of the form of its pedicle, does not cause much disturbance. When the tumor is submucous, it begins to interfere with the mucous membrane, pushing into the cavity and causing severe uterine contractions, which of themselves will cause hemorrhage. After awhile they may assume the form of polypi and you can twist them off. Then, there is the interstitial variety; the whole uterus is peculiar; it is soft, vascular, grows rapidly, and no kind of intrauterine local application seems to have any effect. It is more liable to cystic or malignant degeneration and bleeds freely. In a tumor of that character hysterectomy is the operation to do. I had occasion about five weeks ago to operate on a case that had seven small fibroid tumors the size of a guinea egg to a hazel nut, the case being complicated by an ovarian cyst. I removed the cyst; a competent surgeon was standing by, and I asked him about doing a hysterectomy or dropping the uterus back into the abdominal cavity. He said, "I think you had better take the uterus out." As he was a man of considerable experience, I followed his advice, removed the uterus, and left the other ovary, which was normal. The patient did well, and has gone home. But I believe, if left to my own judgment, I should have left the uterus. In these cases I believe it is the consensus of opinion that if we leave some healthy uterine tissue we do not have excessive neurotic troubles follow.

The Doctor spoke of one case that went on to recovery in which he used electricity. He did not tell us if he continued its use until the patient got well.

DR. GILLIAM.—The patient passed from under my care, and I did not see her for probably a year.

DR. TICHENOR.—I do not know how much efficacy there is in electricity in the treatment of these tumors, but I am using it, although my experience is limited. I have a battery in the office; it looks well; it makes a good show, and a good many talk about it, and say it is a good thing; it makes a pretty piece of furniture. I have studied how to use the copper intrauterine electrode; I wrap cotton around it, saturated with copper salts or nitrate of silver salts, and by the cataphoric action try to drive some of these salts into the tissues; the salts will harden the tissues, and thus prevent hemorrhage. I think in one case it benefited the woman, as she did not bleed as much. One swallow, however, does not make a summer.

DR. MILES PORTER, Fort Wayne, Ind.—I wish to thank Dr. Gilliam for having presented this paper. There is hardly anything in it with which I cannot entirely agree. This paper, together with what has been said in this Section before on the subject of uterine fibroids, coupled with the symposium on hernia, though widely different subjects, teach us important lessons. In connection with the treatment of fibroid tumors we are told by one that they should be removed under all circumstances, while another narrates cases with similar histories, in which he allows the tumors to remain, with the most happy results. This diversity of opinion amounts to this: there are no hard and fast lines which can be laid down even for the treatment of the simple cases that come into the hands of the surgeons. Each case is a law unto itself, and this is particularly applicable to the treatment of fibroid tumors. It is true, as Dr. Gilliam has remarked, that after the menopause hemorrhage is not to be feared as a general rule; yet singular as it may seem, the first fibroid I ever removed was taken away for the purpose of arresting hemorrhage which did not come on until three years after the establishment of the menopause. Again there are young women who are looking well, feeling well, who are the subjects of fibroids, but they do not care to carry protuberant abdomens. Such women consult doctors and desire to be relieved of their tumors. They say, "What are the chances, Doctor?" I believe a woman should be given an opportunity to have the tumor removed, if she so desires, but in giving her that opportunity the personal question comes in. To say to a woman that the mortality from the removal of fibroid tumors is so-and-so because of having arrived at that conclusion from the great bulk of cases reported is not giving the woman an answer which she deserves. She is going to Dr. Gilliam, to Dr. Porter, or somebody else to have the tumor removed and she is going to have it removed, and what she means when she asks that question of mortality is, what will be the probable mortality when you do this operation? It is unfair for us to give these women the general mortality from these operations, when, personally, our individual mortality may be only 2 or 3 per cent. The general mortality may be 10 or 15. So I believe the personal equation, in so far as it applies to the operator and individual upon whom you are going to operate, should enter into the decision of this question. After all, each case should be treated upon its merits, and the best one to judge of the merits of the case is he into whose hands the case is placed for treatment.

DR. J. D. GIBSON, Birmingham, Alabama.—I believe one of the gentlemen spoke of a case in which he thought the uterine fibroid was nourished by the use of electricity. He implied in his remarks that the original source of hemorrhage probably had been relieved by electricity and the tumor was nourished afterward entirely by peritoneal adhesions. I would like to know if it is customary, after the treatment of fibroids by electricity, for them to be nourished; those not treated by electricity, are they nourished by peritoneal adhesions?

DR. WALTER B. DORSETT, St. Louis, Mo.—I can give only my personal experience, and that is that all the cases that I have operated on which have been treated previously by competent electricians have had adhesions, and in some of them the adhesions were large, and doubtless in other cases the tumor was nourished principally by the adhesions. I operated on a physician's wife two years ago where an artery and vein came down from the omentum, nourishing the tumor. One of them was as

large as the femoral; the other as large as the radial. In this case the tumor was undergoing degeneration. She had refused operation a number of times. She was treated by a competent physician for malarial fever; the plasmodium malariæ were found, and the patient went from bad to worse, and finally I was called back, and the physician said: "Doctor, we are going to have an operation performed just as soon as she gets stronger. What do you think about it?" I said to him: "My dear friend, she will never be any stronger than she is to-day." She had a temperature of 102 when put on the table, and never had a temperature over 99.5 after operation. An abdominal section was made, the tumor removed, and it was found to be degenerated. There was pus found in the center of the tumor. This case was treated by electricity for five years off and on, one in which the principal amount of nourishment to the tumor came from the omentum and the bowel. It was a subperitoneal fibroid.

In regard to subperitoneal, intramural and submucous fibroids, I have this theory: These tumors are migratory to a certain extent. In other words, we may have at the beginning an intramural fibroid; later it becomes submucous or subperitoneal, and this changed condition is brought about by the peculiar construction of the muscular fibers, together with the contraction of the uterus incident to menstruation. By this mesh-like general distribution of the muscular fibers the tumor becomes changed, so far as its location is concerned. It is migratory. You can readily understand that, if you use the faradic current in a case of this kind, it produces contraction of the muscular fibers of the uterus, and while the tumor at the beginning of the use of electricity was possibly intramural, by chance, and by chance alone, it became subperitoneal. If it had been located in the beginning, it might have been found nearer the mucous than the peritoneal surface.

DR. W. D. HAGGARD, JR., Nashville, Tenn.—The use of electricity undoubtedly gives rise to complications connected with fibroid tumors, particularly adhesions. I do not think Dr. Dorsett means to be understood as saying that all peritoneal adhesions, particularly the omentum, are due to electricity. Personally, I recall a case of huge fibroid, weighing thirty pounds, which had a pedicle nearly as large as one's three fingers, and the entire nutrition of the growth was derived from the omentum. Huge veins came down as large as fingers. This case was not treated by electricity at all.

DR. GILLIAM, closing the discussion.—I wish to thank the gentlemen for their kind reception of my paper. I shall have very little to say in conclusion. I thought I made myself understood as well as I could considering the short time at my disposal. There are two or three points brought out in the discussion that I would like to explain. In the first place, I do not want to go on record as being opposed to operation for fibroid tumors. I have done a great many of these operations, and I expect to do them in the future. I am opposed to unnecessary operations. An operation is more or less dangerous, no matter what we may say to the contrary. I tell a patient what I think her chances are, and in doing that I consider the personal equation Dr. Porter speaks of. If life is made unpleasant by the presence of a fibroid tumor; if she wants an operation done for its removal, I might probably advise her to have it done, but I do not insist on having it done. By this means I avoid taking upon myself the responsibilty that would weigh heavily upon my conscience for the rest of my life. If she is determined to have an operation done, then I render her my best and most faithful service.

Dr. Reed spoke of one point that I desire to touch upon here. He said that women carry small fibroids, and if he finds them during the course of an examination he does not tell them anything about the matter. In the majority of cases a fibroid is going to be an incubus to the woman; it is going to make her unhappy, and there is danger of her drifting from one physician to another. You try to be honest; you give an honest opinion that you have discovered a fibroid. If you do not tell the woman this, if she is dissatisfied, she will consult another doctor. He will tell her that she has a fibroid, and urge its removal. By reason of the latter advice she either undergoes an operation or is so frightened that she will probably never get over the effects of it. Is it not much better to say to these women: "Madam, you have a little fibroid in the uterus; don't get frightened. These tumors are common; nearly all your neighbors have fibroids, and the reason I tell you is simply because somebody else will do so after a while and probably frighten you; the chances are it may not hurt you during your lifetime. If it should hurt you, consult some good conscientious surgeon, let him advise you in the case." When you speak to them in that way, they are armed for anything that may occur hereafter, and they do not worry about it.

A lady came to me a few weeks ago, who stands high; she is a woman of brilliant intellect. I examined her and said, "you have got a little fibroid about so large." She said to me, "You told me that five years ago." I did not remember her. I do not remember the faces of my patients very well. However, she was going to Europe, and she felt a little uneasy. I happened to be writing my paper at this time, off and on, and I said to her, "let me read you a few lines of this paper, and explain some points to you." I read a little to her, and she was anxious to hear more, and before I got through her mind was relieved, and she left the office in a happy mood.

CATAPHORESIS IN TRACHOMA.*

BY GEORGE F. KEIPER, M.D.
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The word "cataphoresis" is derived from two Greek words.** The word "catalysis,"*** is often used synonymously with "cataphoresis," and incorrectly. Cataphoresis is a subdivision of the electrical process called catalysis. Cataphoresis, as now understood, is a process whereby medicinal substances are introduced into the body, through skin or mucous membrane or both, by the help of the galvanic current.

Synonyms.—Anodal diffusion, electric osmosis, voltaic narcotism, electric transportation, anaphoresis, electric medicamental diffusion, and electric transfer of particles and liquids, are the synonyms in use.

History.—The process is not a new one, though it is attracting more attention to-day and has been for the last ten years, than ever before. Dr. B. W. Richardson, in 1859, wrote two articles on "Voltaic Narcotism." In October, 1858, after vainly trying to produce anesthesia in a rabbit's ear, by the electric current alone, he used a solution of morphin at the positive pole of the battery and succeeded in anesthetizing that organ. Then he used tincture of aconite at the positive pole with the same result. He used the following solution:

℞. Tinct Aconit	3iii	3|90
Ext. Aconit. Alch	3i	1|30
Chloroform	3iii	3|90

He put the positive pole of the battery, wet with one-third of the above solution around the upper part of the shaven hind leg of a dog. The negative pole was applied to the ankle. Eleven minutes sufficed to produce complete anesthesia to sticking pins. Then the tendo Achillis was severed without pain. In one hour the leg was amputated without any pain, except when the bone was sawn through. Then the dog cried out once, but probably from terror. Twenty minutes later the dog ate heartily and walked around on three legs quite unconcernedly.

A nevus one inch in diameter was subsequently removed from the shoulder of a ten-weeks-old baby, after a half hour's application of a solution of chloroform and tincture of aconite, 5 drops each, applied to the positive pole. A strangulated hernia was also operated on by this method, and then a tumor of the shoulder on a patient 47 years old was removed, all of which were painless.

Richardson's work aroused a storm of opposition on the Continent and in England and for twenty-five years it lapsed into obscurity.

Wagner, in 1886, reintroduced the subject to the profession. Adamkiewicz, in 1886, described a diffusion electrode for introducing chloroform into the tissues. In 1889 Peterson called attention to Richardson's experiments and theory. Opposition and criticism again greeted its revival, but to-day it has all disappeared.

*Presented to the Section on Ophthalmology, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

**Κατα, down, and Φορειν, to bear.

***Κατα, down, and Λυειν, to loose.

Apparatus.—A good battery, say of twenty cells. For good results the plates must be clean and the zinc plate well amalgamated. The solution ordinarily used should be fresh. A switch-board in the commercial circuits is best.

2. A good milliamperemeter—the Kenelley or Weston are the best, because they are not influenced magnetically by the presence of iron in the immediate vicinity. The work previously done in this line has lacked scientific accuracy because the current has not been measured. No current should be passed through any person unless accurately measured. Many of the articles written speak of the use of from ten to twenty Grenet cells in producing the effects to be afterward described. This may mean much or little. If the battery fluid be old and nearly exhausted, or the carbon plates dirty and the zinc plate not properly amalgamated, and the connections poor and dirty, there will not be very much current, otherwise there will be. Hence there is no scientific accuracy in publishing results thus.

3. Proper conducting cords with proper tips for making connections between battery and electrodes and battery and milliamperemeter are essential.

4. Such electrodes as may be necessary. For forcing in solutions of drugs, the ordinary carbon electrodes of various sizes are best for ordinary use. Special ones will be described later.

5. Plenty of absorbent cotton to take the place of the dirty and filthy sponges now in almost general use on the electrodes is another necessity.

Theory of Cataphoresis.—If a vessel be divided into two distinct and separate compartments, by an animal membrane, and each side be filled to the same level, the one with a dense liquid and the other with one lighter in density, there will take place what is known as osmosis, whereby the lighter liquid will travel through the membrane to the denser. After a time the level of the denser will be higher than that of the lighter. Now, if the positive pole of the galvanic battery be placed in the denser and the negative pole in the lighter, the denser will be driven through the membrane into the lighter in direct opposition to the natural process of osmosis, i. e., the liquid travels in the direction of the current—from the positive to the negative pole. The effect is mechanical, for no decomposition takes place if carbon or platinum electrodes be employed.

Experiment: Take two porous cups and place them in a basin of water. Fill each to an equal height, with water. Put the positive pole of the battery in one and the negative in the other. Turn on the current and after a time the level of the water in the cup wherein is the negative pole will be higher than in the cup containing the positive pole. In fact the water will in a measure leave the cup containing the positive pole and its level may be lower than the surrounding water in the basin. Thus, with this simple experiment it is possible to make solutions travel in the direction of the electric galvanic current.

Physiology of the Process.—Experiment: Take a frog, keep its skin wet with a 2 to 5 grain solution of strychnin sulphate, and in a few minutes it will die of strychnin poisoning. The skin absorbs the strychnin. The skin of man and other mammals does not absorb substances readily because of the fat present in the epidermis and pores. Remove the fat with ether and the skin becomes more permeable. Massage, coupled with cutaneous medication, helps absorption by forcing the medicine into the pores. If the epidermis be removed either by abrasion, burn or blister, absorption will take place rapidly.

Experiments: Apply the positive pole of the battery to the back of the hand and the negative pole to the palm, and turn on a current of five milliamperes for from ten to twenty minutes. No anesthesia is produced.

Apply a 10 per cent. solution of cocain to the back of the hand and leave it there until the water is evaporated. Then apply more and thus continue the process until twenty minutes shall have elapsed. No anesthesia is produced.

Take a small carbon electrode, cover it with cotton and moisten it with a 10 per cent. solution of cocain. Attach it to the negative pole of the battery. Hold it on the back of the hand, grasping the positive pole in the palm thereof. Pass a current of five milliamperes for ten minutes. The result is no anesthesia, but hyperesthesia at the negative pole.

With the same electrodes as above, apply the electrode covered with cotton moistened with cocain to the positive pole. Put it on the back of the hand which grasps the negative pole in its palm. Turn on a current of five milliamperes for ten minutes, and the result is anesthesia to pain, touch and temperature.

H. Munk,[1] in a series of experiments found that he could as above introduce sufficient strychnin through the skin of a rabbit to cause it to die of strychnin poisoning in a few minutes. Quinin and potassium iodid introduced thus have been detected in the urine. What is true of cocain, quinin, strychnin and potassium iodid is also true of aconitin, mercuric bichlorid, guaiacol, metallic mercury (Massey), peroxid of hydrogen, sodium chlorid, morphin sulphate and lithium salts.

Peterson has thus summarized the physiologic action: "The galvanic current alone does not produce anesthesia at either pole, although the anode—positive pole—has a soothing effect over painful foci. A watery solution of cocain applied to the skin is not absorbed and does not produce anesthesia except, perhaps after an indefinite and long period. The same is true of chloroform and of an alcoholic solution of aconite. A watery solution of cocain is diffused through the skin and subcutaneous tissues by the anode, but not by the cathode. This is true of chloroform, aconite, strychnin, potassium iodid, corrosive sublimate, tincture of iodin and a number of other medicaments. Chloroform had better not be used this way unless a vesicant effect be desired. By this process a dermatitis is produced, the effect lasting for a week to ten days.

Haynes summarizes the effect of the direction of the current thus: "The galvanic current used to produce electrolysis on living tissues accomplishes results by utilizing three properties of current. 1. The chemical property into which the electricity is converted and manifests itself in the fluids and semifluids of the body contiguous to the electrodes—catalytic action; 2, the physical properties, due to the disintegration of the electrodes and the transference of substances through the tissues—cataphoric action; 3, the physiologic properties of the galvanic current as it produces trophic changes in the tissues."

In connection with this must be considered the solution of the electrodes themselves, and if placed at the positive pole the cataphoric action obtained by the solution of the electrode penetrating the tissues in the direction of the negative pole.

Experiments: Take a piece of fresh, juicy, lean meat, and put on one side a carbon electrode connected to the negative pole. To the positive pole attach a pure copper needle and insert into the meat; turn on the current. After a time on cutting the meat open around the needle an apple-green stain will be found. This is diffused in

the direction of the negative pole. Or, putting a blunt pure copper electrode on the surface of the meat, we get the very same stain. Chemical analysis of the stain shows it to be the oxychlorid of copper; it is a powerful germicide. In the reaction, HCl and H_2SO_4 and O have been formed, which, uniting with the copper, form the oxychlorid of copper, and this, being soluble, is diffused by the cataphoric action of the current in the direction of the negative pole. It will also be seen that the needle used is difficult to withdraw after the current has been on. This is probably due to the albuminate of copper formed holding it fast. By reversing the current the needle can be easily withdrawn after a time. Not only is this true of copper but it is also true of iron, lead, zinc, and brass, which are readily soluble. Tin, silver and aluminum are less readily soluble. Carbon and gold are the least resistant of all the metals. Platinum and platinum with its alloy of iridium are not acted on at all.

THERAPEUTIC INDICATIONS.

For Relief of Pain.—In neuralgia, cataphoresis with a 10 per cent. solution of cocain or cocain with guaiacol, which is preferable, produces anesthesia which lasts from four to eleven hours electricity alone producing a transitory effect.

In tubercular laryngitis, by placing the positive pole wet with guaiacol on one side of the larynx externally, and the negative pole on the other side externally, relief from pain is usually prompt and the effect lasts about twenty hours. Guaiacol is to be preferred to creosote as being less irritating; in fact guaiacol is creosote deprived of its irritating properties. Lactic acid and curettement may be abandoned.

"In cutaneous operations," Dr. Dawbarn writes, June 10, 1889: "I have recently . . . tried this method on a child's hand requiring suture of a severed tendon. The injury was an old one, and there was no wound before I made my incision. The anesthesia from 10 per cent. cocain on the anode, continued with my chlorid of silver battery—twelve cells—for ten minutes, was very satisfactory."

In rheumatism and gout, at Edison's laboratory, a number of experiments have been made whereby lithium chlorid has been forced into the tissues. In an old man who had chronic uric acid concretions so that the joints between the phalanges were obliterated, by the cataphoric action of lithium chlorid after twenty-five hours of total application the measurements made showed a distinct reduction in bulk. The pain was relieved and the patient's general condition improved. The 120-volt current was employed through proper resistance. The current strength was twenty milliamperes. Note that this is a very strong current for cataphoresis, five milliamperes is sufficient. The séance is generally five to fifteen minutes; the stronger the current the shorter the séance.

In gynecology cataphoresis is giving results which are gratifying.

In this connection permit me to bring to your attention a new method of treating affections of the tear-duct and lachrymal sac by the cataphoric action of protargol. The cupped sounds are the ordinary Theobold probes in which at intervals of one-fourth of an inch cups are made into which the protargol in vaselin is placed. The probe is introduced in the usual way and after it is in place it is connected to the positive pole of the battery while the patient holds the negative carbon electrode in his hand. A current of five milliamperes is turned on and five minutes suffice to drive all the medicament out of the cups into the lachrymal passage. So far this mode of treatment has given me better results than any I have heretofore tried.

Concerning the therapeutic indications of metallic electrolysis and the consequent cataphoric action, much might be written. Massey, in a work just published on conservative gynecology, speaks of an original method of treating cancer by passing into its substance mercuric oxychlorid. He used gold electrodes into which the mercury is amalgamated by submersion. By using a large lead electrode, 12 by 20 inches, at the negative pole, he is enabled to pass through the cancer as high as 350 milliamperes. His theory is that the cancer cells possess less physiologic resistance to the interstitial attack than does normal tissue. In fact the cancer cells lose their viability without the normal tissue suffering necrosis.

In laryngology, and in tubercular laryngitis, the soluble copper electrode is of great value. The oxychlorid of copper is not only a powerful germicide but a powerful stimulant to resolution of the painful ulceration, but it is in the treatment of granulated eyelids that we have made the most distinct advance over the older methods of treatment, so that it is now possible to cure in months trachoma that would have otherwise taken many years.

In the *Ophthalmic Record,* October, 1898, after three years of earnest search for a more efficient remedy for this troublesome disease, was published a new treatment for trachoma which consists simply in the solution of a pure copper electrode in the substance of the lid, by the means of the galvanic current. The sulphate of copper pencil, which has always been our standby, produces but a superficial action. The oxychlorid of copper is a more powerful germicide than the sulphate of copper and besides it penetrates into the very substance of the granulations themselves, causing their absorption, without contraction of the eyelids. Some pain follows the operation, which is quickly allayed by the application of cold water to the closed eyelid. Three milliamperes of current are generally sufficient When the communication was published it was supposed to be entirely new. But the wise man of Israel has said that there is nothing new under the sun, and I was chagrined at having my "discovery" disputed by Dr. Neiswanger of Chicago. Demanding his proof as to the priority of the discovery, he sent me copies of the *Alkaloidal Clinic* of three years ago, containing in a short paragraph his use of it on a Kansas physician's trachomatous eyelids before a clinic in the Post-Graduate Medical School of Chicago. But as the *Alkaloidal Clinic* is not read generally by ophthalmologists it never came to light in ophthalmic literature and was buried. However, it afforded me great pleasure in the succeeding number of the *Ophthalmic Record* to accord to Dr. Neiswanger proper credit for his priority in this valuable discovery.

In a communication to the American Electro-Therapeutic Association in 1894, Dr. W. J. Morton offered the following conclusions concerning metallic electrolysis.

1. The salts of many metals may be electrically dissolved from metallic electrodes, and at the same time be caused to permeate human tissue to a considerable depth. In the case of copper on dead tissue, with the current usually applied to living tissue, this depth is visible as an apple-green color, in the radius about the electrode of from one-fourth to one-half an inch; it probably invisibly extends much farther, shading off to a minimum.

2. The electrically formed and electrically diffused metallic salts are not destructive to tissue in the sense that ordinary electrolysis is; the effect is rather by the presence of a partially insoluble salt and by the effect of

a newly formed organo-metallic salt, denutritive or absorbing, on diseased tissue.

3. It would seem that these electrically-formed salts possess a selective affinity for diseased in preference to healthy tissue, or at least produce a more profound action on the morbid tissue, causing a favorable alteration in the nutrition of the part.

4. Electric diffusion is greatly superior to topical application, for the reason that the medicament is caused to penetrate the tissue acted on.

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5. Beard and Rockwell: Medical and Surgical Electricity.

DISCUSSION.

DR. HUIZINGA.—As to the benefits to be derived from cupric electrolysis in trachoma, I believe that it deserves more than a passing notice. Taking for granted for the present that trachoma is the result of specific infection, and that the neutralization or destruction of this infection is a primary requisite for the cure of the trouble, it must follow that if cupric electrolysis will accomplish this it is a valuable remedy. To determine this factor I have made a large number of extensive and careful experiments in which a five-milliampere current was passed for five minutes through previously infected raw beef, the anode being an electrode made of pure copper. A piece of this electrolyzed beef was afterward placed in sterile solutions of bouillon and agar. If the excised piece was very thin, and taken from the place where the anode had been, it was found that the beef was completely sterile, thus showing that in the immediate vicinity of the anode the current passing through the copper electrode had distinctly germicidal properties. I believe a current of this kind will penetrate the conjunctiva and destroy or neutralize the cause of trachoma for about the depth or thickness of an ordinary inflamed conjunctiva, but no farther, and inasmuch as the cause of this disease may be deeply imbedded in the tissues, the usefulness of this form of treatment has its limitations.

I have estimated that the amount of copper deposited in the tissues is approximately 1-300 of a grain. This copper unites with the chlorin ions in the tissues to form the chlorid of copper. It is necessary, in order to get a maximum effect in a minimum of time, that the distance between the anode and the cathode should never be less than five inches. The reason for this is that the amount of chlorin ions between the two poles must be sufficient to meet any demands that may be made on them. To illustrate this I have repeatedly tried the following experiment: Two electrodes placed in raw meat at a distance of ten inches from each other, will dissolve one-eighth of a grain of copper wire in twenty minutes, with a voltage of 60, and an amperage of 20, while if the distance between these two poles was only three-quarters of an inch it required an hour to dissolve one-eighth of a grain of copper wire, with a voltage of 10 and an amperage of 20.

DR. L. HOWE.—At the last meeting of the American Therapeutic Society I presented a paper on an analogous subject, and in looking up the literature I found that Morton's book was the only one that contained any concise statements on the subject. I am somewhat surprised at the amperage mentioned, because one and one-half or two milliamperes will cause the patient to wince very decidedly, and three is painful in the extreme.

As to the electrode, we can get the same results by using instead of the solution of sulphate of copper, simply the crystal applied against the conjunctiva itself. In using solutions we must take into consideration that they are decomposed before entering the tissues. I have made the attempt to estimate the amount of substance which might be introduced into the globe in this way. I thought I could get the characteristic starch and iodin reaction without difficulty, and on several human eyes, just before enucleation, and in many rabbit eyes, I have applied the two electrodes with solution of iodin in various strengths and then turning on the current tested with the starch solution, but I could not get a trace of blue color. I know the amount was very small, but still I do not think there is proof that the solution enters the tissue in that manner.

DR. G. F. KEIPER.—Dr. Howe spoke of the wincing of the patient. I think it is best to always use cocain first, but still the patients will suffer some pain, and the most peculiar thing is that they have most of it after they leave the office.

Correspondence.

Medical Guild of the Misericordia.

WESTBORO, Mass., July 10, 1899.

To the Editor.—The Medical Guild of the Misericordia is a society of medical practitioners and medical students interested in the work of mercy for the sorrowing and suffering. The guild comprises an order of brothers and associate communicants of the Anglo-Catholic Church in every land, with priests as chaplains whenever their services are required. The relief it seeks to afford in corporal works of mercy is: To feed the hungry; to give drink to the thirsty; to clothe the naked; to rescue the fallen; to visit the prisoner; to shelter the stranger; to visit the sick, and to bury the dead.

Members of the guild obligate themselves to engage in any or all of the above works whenever occasion offers, and to consider it their especial duty to watch for opportunities for so doing. In a word, the object of the organization is to impress on and keep before the minds of its members the duty of doing works of mercy, both corporal and spiritual, whenever it is possible.

Wherever there is suffering there is our opportunity. The emblem of the order is the crucifix, on the reverse arms of which appears the word "Misericordia." The skull and bones and words *Memento Mori* also are used as emblematic of the fraternity. The girdle of the guild is of purple silk cord with seven knots and seven silver beads, and is to be worn always, day and night the same, and around the shroud in death. In the impressive ceremonies attending membership, the candidate pledges himself with God's help that he will faithfully strive to carry out, with charity, humility and fortitude, all the public and private intentions of the Guild, and to preserve in secrecy all the works of mercy which he may be permitted to perform. He also pledges himself that he will not disclose the names of the members of the Misericordia.

We are glad to welcome to membership all who desire, for any cause, to devote the remainder of their lives to deeds of charity; all—rich or poor, saint or sinner—those whose hearts have been touched by sorrow or misfortune or who, through charity, seek to offer help to sufferers—"Darkened by shadows of earth, yet reflecting the image of heaven." Sincerely yours,

W. TH. PARKER, M.D.

A National School of Tropical Medicine.

ST. ANNE, Ill., July 15, 1899.

To the Editor.—With the "Stars and Stripes" flying over the Hawaiian Islands and our new possessions abroad since the termination of the war with Spain, has not the time arrived for a more thorough and systematic teaching in our medical schools of the etiology, pathology, symptoms and treatment of tropical diseases? Returning from the west coast of Africa, last April, I was delighted to learn of the energy being displayed by the Liverpool School of Tropical Diseases, and knowing, from personal experience, what a terrible havoc malarial fever causes among the white settlers in western and equatorial Africa, and realizing how the troops and citizens in our new possessions will have to face not malaria alone, but other diseases peculiar to warm climates, I venture to advocate a more thorough course in all diseases pertaining to the tropics.

Many of the future graduates from our medical schools will take service in either military, naval or civil life in our new possessions; and the preference will undoubtedly be given to those best versed in tropical diseases. Not only would I advocate a special chair for teaching the subject of tropical medicine in every medical department of state and private institutions, but also the formation of a government school of tropical medicine, having well-fitted laboratories for research and original work. Physicians residing in tropical lands would doubtless be only too glad to collaborate with such a school, and give it the benefit of their experiences and material obtained on the spot.

Soldiers and others invalided home would often furnish valuable clinical material. Future graduates in medicine will then be able to go forth from their college with such an intelligent understanding of tropical diseases as to justify their acceptance for service in our foreign possessions. Respectfully,

ALBERT L. BENNETT, M.D.
Presbyterian Mission, Angom, Congo Francais.

The Hopelessly Insane.

WAUWATOSA, WIS., July 13, 1899.

To the Editor.—Your journal does me an injustice in reporting a paper (JOURNAL, xxxii, p. 105) read by me on "Contagion and Infection in Nervous and Mental Diseases," at the late meeting of the American Medico-Psychological Association in New York. Your words are, "Incidentally he advocated the somewhat radical measure of judicially ending the lives of the hopelessly insane." It would scarcely be necessary to explain that this was an error to those versed in these matters, but as many readers may be misled, I wish to say that in my paper I proposed to inquire whether various radical measures frequently advocated, among them electrocution for incurable insane, castration, etc., were practicable measures and the conclusion at which I arrived, distinctly given in my paper, was that such measures were not practicable. Please make this correction and oblige, Yours truly,

RICHARD DEWEY, M.D.

A Novel Device.

MEMPHIS, TENN., July 11, 1899.

To the Editor.—In answer to the letter of Dr. W. H. DeWitt of Cincinnati (JOURNAL, June 17, p. 1378), I would say that the "cotton capsule" is a well-known and much-used expedient for getting gastric juice. It was first used, I believe, by Max Einhorn.

WM. KRAUSS, M.D.

Current Medical Literature.

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2.—*Surgical Anatomy of Bile-ducts and a New Incision for Their Exposure. Arthur Dean Bevan.
3.—*Comparison of Merits of Suprapubic and Perineal Cystotomy. Nathaniel P. Dandridge.
4.—*Observations on Volvulus, with Report of Three Cases Submitted to Operation. Ellsworth Eliot.
5.—*Inflammation of Bursa Gastrocnemia-semimembranosa, with Report of Four Cases of Enlargement and Distension of this Bursa Treated by Excision. Forbes Hawkes.
6.—*Importance of Blood Examinations in Reference to General Anesthetization and Operative Procedures. Hamilton Fish.

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7.—*Diagnosis of Nervous Syphilis. Chas. W. Burr.
8.—*Remote Results in Artisan's Palsy. F. Savary Pearce.
9.— Description of Adjustable Bracket for Reid Ophthalmometer. C. A. Oliver.
10.— Resection of Portion of Sigmoid Flexure for Cure of Recurrent Carcinoma. Edward Martin.
11.— Bilateral Swelling of Submaxillary (Salivary) Glands in Typhoid Fever, without Enlargement of Parotids. D. J. Milton Miller.
12.— History of Medicine. David Riesman.

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13.— "Color Screens" as Applied to Photomicrography. J. G. Hubbard.
14.— Examples of Application of "Color Screens" to Photomicrography. James H. Wright.
15.—*New Spore-Producing Bacillus. F. P. Denny.
16.—*Relation of Depressor Nerve to Vasomotor Center. W. T. Porter and H. G. Beyer.
17.—*Relation of Dextrose to Toxin Production of Diphtheria Bacillus. Theobald Smith.
18.— Physiologic Action of Extracts of Lymphatic Ganglia. Allen Cleghorn.
19.—*Origin of Fibrinogen. A. Mathews.

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20.— Report of Case of Sclerotic Narrowing of Meatus. G. K. Swinburne.
21.—*Case of Erythème Induré des Scrofuleux of Bazin, with Microscopic Findings, Showing Its Non-Relationship to Tuberculosis. Charles T. Dade.
22.—*Erythema Induratum and Necrotic Granuloma in Same Subject. Jas. C. Johnson.

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23.—*Syphilitic Stricture of Rectum: Two Cases with Operations. A. B. Cooke.
24.—*Use of Chloroform in Labor. W. B. Gossett.
25.—*Hygiene of Vision: Readable Print. Wm. B. Meany.
26.—*Peculiarities in Heart Affections in Children. P. F. Barbour.
27.—*Cerebrospinal Meningitis: Report of Case. L. C. Royster.
28.—*Vaccination and Revaccination. S. T. Payne, Jr.
29.—*Report of Case of Triplets. J. Louis Early.

Medical Standard (Chicago), July.

30.— Gastro-Intestinal Antisepsis. James Mills.
31.—*Treatment of Appendicitis, with Rule for Determining which Cases Require Operation. G. D. Ladd.
32.—"Gridiron Splint" for Compound Fractures with Laceration. W. B. Morrison.
33.—*Post-operative Hernia. F. Shimonek.
34.—*Throat Cough. James A. Bach.
35.— Technic of Ether and Chloroform Anesthesia. Aime Paul Heineck.

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37.— Physician from Patient's Standpoint. Wm. E. Thompson.
38.— Extra-Uterine Pregnancy. L. W. Day.

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39.— Progress in Serumtherapy. Chas S. Mangum.
40.— Ectopic Pregnancy. J. W. Long.
41.— Case of Tumor of Brain, Symptomatically Relieved by Exploratory Operation in Skull. W. B. Pritchard and Jno. A. Wyeth.

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42.—*Appendicitis: from Standpoint of Country Doctor. A. C. Davidson.
43.—*How Can Spread of Scarlet Fever and Diphtheria be Prevented in Public Schools? Gilman Robinson.
44.— Necessity of State Pediatric Society. O. B. Bush.
45.— Case of Chronic Pachymeningitis following Course of Superior Longitudinal Sinus, and Apparently the Result of Chronic Syphilitic Rhinitis. E. R. Corson.
46.— Note on Treatment of Malignant Neoplasms by Electricity. J. McF. Gaston.

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47.— Hemorrhoids. R. J. Parker.
48.—*Plea for Conservatism in Gynecology. F. C. E. Mattison.
49.—*Tooth in Nasal Cavity. Hoell Tyler.
50.— Constipation. Wellington Burke.
51.—*Posture in Reading. Fred Baker.
52.— Plea for More Careful Treatment of Middle Ear Inflammations. W. D. Dilworth.
53.— Otology and Rhino-laryngology—up to Date. B. F. Church.
54.—Purification of Drinking Water. H. Shafer.

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55.—*Hyoscin. J. T. Fotheringham.
56.—*Surgical Gynecology Among Insane: Right or Wrong. A. T. Hobbs.
57.—*Use of Rubber Splints in Treatment following Intranasal Operations. J. Price-Brown.
58.— Surgical Intervention in Cases of Spastis Paralysis. B. E. McKenzie.
59.— Criminals and Their Characteristics. J. H. McCassey.

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60.—*Depopulation of Towns Infected with Yellow Fever; a Prophylactic Measure and Business Proposition; Time and Method. H. H. Haralson.
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62.— Quarantine: Unity of Medical Profession Essential to its Enforcement. Robert E. Jones.
63.— Case of Compound Comminuted Fracture of Ulna and Radius with Suture of Two Flexor Tendons. P. L. Bellinger.

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64.—*Results of Widal's Test in Diagnosis of Typhoid Fever from Dried Blood Specimens. Adolph Gehrmann.
65.— Epidermatization Surgically Considered. Weller Van Hook.
66.— Method of Using Protargol in Gonorrhea. J. Stephen Nagel.
67.— Rapid Method of Paraffin Imbedding. S. H. Champlin.

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68.—*Medical Legislation. Wm. Krauss.
69.—*Fever of Mountains of East Tennessee. H. C. Chance.
70.— Intubation of Larynx in Laryngeal Diphtheria or Pseudomembranous Croup. Richmond McKinney.
71.— Clinical Report of New Remedy in Treatment of Gonorrhea. Edwin Williams.

Indiana Medical Journal (Indianapolis), July.

72.— Choreic Movements. W. B. Fletcher.
73.—*Investigation of Digestive Activity of Stomach. Alois B. Graham.

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74.— Epidemic Cerebrospinal Meningitis. K. S. Howlett.
75.— Eclampsia. W. E. Haraway.

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76.— Treatment of General Suppurative Peritonitis. Stuart McGuire.
77.— National Formulary. M. D. Hoge, Jr.

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78.—*Transient Paraplegia and Tetany, of Gastric Origin. G. W. McCaskey.
79.— Doctors and the Law. L. H. Wrigley.

80.— Remarks on History of Indiana State Medical Society. W. H. Wishard.

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81.—*Summer Complaints of Children. W. H. Allen.
82.— Diarrhea of Infants. A. H. Schenk.

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83.— Venesection in Pneumonia. John North.
84.— Studies in Epithelium. D. E. Haag.
85.— Circumcision. H. Bamberger.

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86.— Nephrolithiasis. A. H. Cordier.
87.— Medical Jurisprudence. Jos. Daily.
88.— Tuberculosis in Monkeys. W. A. Evans.
89.—*Saturday Lessons in Neurology. H. N. Moyer.
90.— How does Cause of Disease Produce Disease. G. M. Russell.
91.— Autointoxication. E. Stuver.

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93.—*Significance of Hallucinations of the Dying. W. J. Chenoweth.
94.—*Treatment of Diabetis Mellitus. R. C. Kenner.
95.— Side Lights on Tuberculosis among Negroes. Wm. Stoakley.
96.— Scattered Leaves from a Physician's Diary, No. 7. Albert Abrams.

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97.—*Aortitis. Chas. F. Hoover.
98.—*Digitalis and the Heart. Geo. M. Waters.

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99.— Case of Lichen Ruber Acuminatus. Edwin S. Shields.
100.—*Importance of Recognition of Certain Chemical Blood Changes, and Especially Toxemia, in our Therapeutics. John V. Shoemaker.

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103.—*Relation of Ophthalmology to General Medicine. G. Griffin Lewis.
104.—*Some Aspects of Chronic Malarial Infection and Their Treatment. W. H. Thomson.
105.—*Phthisis: Its Etiology and Treatment. George D. Barney.
106.—*Term Appendicitis, etc. R. Ellis.
107.—*Why Fumigation of Apartments Occupied by Tuberculous Patients at Health Resorts Should Be Under Municipal Control. Charles F. McGahan.

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108.—*Advice to Gonorrheal Patients. Ferd. C. Valentine.
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110.— Membranous Laryngitis. George B. Kalb.
111.— Further Notes on Case of Malta Fever; a Study in Serum-Diagnosis. John H. Musser and Joseph Sailer.
112.—*False Tonsils. Robert N. M. Dawbarn.
113.—*Large Diffuse Lipoma of Neck; Operation; Recovery. J. Shelton Horsley.
114.—*Lectures on Orthopedic Surgery. John Ridlon and Robert Jones.
115.—*Pathology of Catarrhal Deafness. Frank Whitehill Hinkel.
116.—*Involvement of Eye and Ear in Cerebrospinal Meningitis. William Cheatham.
117.—*Variations in Manifestations of Malaria. Charles Dewey Center.
118.—*Treatment of Certain Typhoid Fever Cases at U. S. General Hospital, Fort Monroe, Va. Carl H. Andersen.
119.—*Fatal Case of Infantile Scurvy: Autopsy. Anthony Bassler.

Boston Medical and Surgical Journal, July 13.

120.— Medicine as a Profession. W. B. Platt.
121.—*Etiology and Diagnosis of Cerebrospinal Fever. Wm. Osler.
122.—*Examinations of Stained Specimens of Blood in Its Application to Clinical Work. Henry F. Hewes.
123.—*X-ray Examinations in Children. Francis H. Williams.

Medical News (N. Y.), July 15.

124.—*Treatment of Summer Diarrhea in Infants. H. D. Chapin.
125.—*High Altitude and Heart Disease. Robert H. Babcock.
126.— Cystitis: Its Cause and Treatment. George T. Howland.
127.— Case of Placenta Previa. Charles A. Helvie.

Medical Record (N. Y.), July 15.

128.—*Some Points in Symptomatology, Pathology and Treatment of Diseases of Sinuses Adjacent and Secondary to Orbit. Charles Stedman Bull.
129.— Some Remarks on Chronic Bright's Disease. Arthur R. Elliott.
130.—*Preparing for the Knife in European Hospitals. J. Preston Miller.
131.—*Relations of Cardiac Murmurs to Events of Normal Cardiac Cycle. Warren Coleman.
132.—*Treatment of a Supposed "Kissing-Bug" Wound, followed by Prompt Recovery. F. A. Burrall.

AMERICAN.

1. See abstract in JOURNAL, June 10, p. 1312.

2. **Surgical Anatomy of Bile-Ducts.**—Bevan calls attention to the error in description by Fenger, in the anatomy of the bile tracts, in placing the portal veins in front of the hepatic ducts and over the upper portion of the common ducts. His incision was described in the JOURNAL, June 26, 1897, p. 1225.

3. See abstract in JOURNAL, April 22, p. 882.

4. **Volvulus.**—This article is a discussion of the whole subject of volvulus and its treatment, with reports of three cases.

5. **Inflammation of Bursa Gastrocnemio-Semimembranosa.**—Remarking that inflammation of this bursa is probably frequent, and on the rarity of recorded instances in the literature, Hawkes describes its anatomy, etiology, diagnosis, and the operation for its cure, as the excision is the only plan which he thinks advisable when a radical cure is expected, unless it be in syphilitic cases. The details of the operation are given with such fulness that we must refer the reader to the original article. Four cases are reported and a bibliography given.

6. **Blood Examinations in Anesthesia.**—The following are the conclusions of Fish's paper: Safety in anesthesia and operative procedures is dependent on a hemoglobin percentage over and above that required for the performance of its normal duties, and a normal or increased number of polynuclear neutrophiles. Under these conditions anesthesia may be produced, and operative procedures conducted with assurances of perfect safety.

7. **Diagnosis of Nervous Syphilis.**—Burr's paper discusses the general symptoms attending nervous syphilis, such as the suddenness of serious complications, headache, insomnia, the fleeting nature of certain symptoms, etc.

8. **Remote Results of Artisan's Palsy.**—Pearce divides occupation palsies into three classes: muscular cases due to overviolent use of muscles; the neuritic type, consisting of a peripheral neuron irritability which may pass over to a subacute neuritis; the arterial cases associated with arterial or capillary involvement. The first type is hopeful as to cure, the second serious, but still hopeful, and the last form rather persistent. With the first class, stop the cause and recovery will quickly follow. In the second, if the central nervous system is not involved, the cases are not unpromising. He believes that a larger proportion of all cases recover than has perhaps been generally recognized.

15. **New Spore-Producing Bacillus.**—Denny describes a bacillus obtained from sputum sent for tubercle bacillus examination. The patient died some months later, probably from a general tuberculous infection. A similar bacillus has been isolated by Dr. Hopkins, from the mouth of a healthy individual, and he is of the opinion that it is not an uncommon mouth-dweller, but neither he nor Denny has been able to identify it with any form heretofore described. It resembles the bacillus subtilis in many respects, but is broader, has a larger number of flagellæ, its growth on agar is more rapid and free, the spores are less resistant to heat, and the serum of animals inoculated with this bacillus does not give a clumping reaction with bacillus subtilis. A striking peculiarity of this bacillus is that well-marked clumping action was obtained with the serum of guinea-pigs which had been inoculated with its bouillon cultures, especially in connection with the fact that it is not pathogenic.

16. **Relation of Depressor Nerve to Vasomotor Center.**—It has been thought that the fall of the blood pressure, seen when the central end of the depressor nerve is stimulated, is due chiefly to the dilatation of the abdominal vessels through the splanchnic nerve, or, in other words, that the depressor nerve was connected with the vasoconstrictor fibers of the splanchnics in a different way from its connection with other vasomotor fibers. To settle this question, Porter and Beyer experimented by separating the splanchnic nerves and watching the effect of depressor stimulation. The fact that the separation causes so great a fall in blood pressure that quantitative measurements of vasomotor effects were embarrassed, was overcome by stimulation of the separated ends of the splanchnic nerves until the blood pressure again rose to the normal, then electrically exciting the depressor nerves. Numerous experiments by this method showed that the fall of blood pressure caused by depressor stimulation does not especially diminish after exclusion of the splanchnic area. The fall observed under other conditions, therefore, is not due especially to the dilatation of the abdominal vessels, and consequently there is no reason for supposing that the depressor nerve has special connection with the bulbar cells through which the splanchnic fibers receive their constrictor impulses.

17. **Influence of Dextrose on Toxin Production.**—In this preliminary note Smith notices the fact that it has been generally held that the varying and disappointing actions of diphtheric toxin, obtained from cultures made from beef bouillon

in the usual way, are referable to the presence of muscle sugar, which is promptly converted into acids by the bacillus. He has modified the method of Stronck for meeting this trouble, by causing fermentation of the beef. In further experiments for concentration of the toxins he found that dextrose could be added to bouillon from which the muscle dextrose had been removed, with the result of actually favoring the accumulation of toxin, and the details of this discovery will appear in a forthcoming article. He does not explain this difference between the reaction of muscle dextrose and the dextrose introduced in this way, but gives some of his experiments and conjectures in regard to it. He remarks that the difference in the toxicity of bouillon cultures prepared in different ways should make bacteriologists cautious in claiming actual increase of virulence when such increase may depend entirely on the environment and may be modified by changing the medium. In comparative tests of toxicity, only guinea-pigs raised under the same conditions should be used. Animals from certain sources may be twice as susceptible as those from others.

19. **Origin of Fibrinogen.**—Mathews concludes, from his studies, that fibrinogen is derived from the decomposing leucocytes, chiefly those of the intestinal area. It possibly corresponds to that constituent of the body of the leucocyte which falls into a fibrillar form during karyokinesis. Karyokinesis and the clotting of blood are possibly identical processes.

21 and 22. **Indurated Erythema.**—Dade reports, with illustrations, a case of indurated erythema of Bazin in which microscopic examinations were made showing that there was no evidence whatever of its being tuberculous, therefore rendering improbable the title of "des scrofuleux" given by the French author. Johnson reports a case of this disorder and reviews its histology and treatment. He thinks that climatic conditions are the chief provoking causes, and his best success in managing the trouble has been through general methods, forced feeding, life in the open air, tonics, etc. It is non-microbic and, therefore, must be toxinic.

23. **Syphilitic Stricture of Rectum.**—Cooke attributes the occurrence of syphilitic disease causing stricture of the rectum to the special irritation in this part, which is greater in women, who are the chief sufferers in the proportion of from 5 to 10 to 1, reversing that of syphilis itself. The location is fortunately low down, as a rule, at the point where the impacted fecal masses would meet with their first obstruction and cause irritation. About 50 per cent. of all rectal strictures occur in syphilitics. The symptoms are described in detail and the diagnosis is generally clear, but physical examination should never be omitted. It is a matter of great importance to make a correct diagnosis, considering its possible effect on the family. The diagnosis between syphilitic stricture and malignant disease is comparatively simple, and the microscope is always available. Internal medication is useless in this condition, surgical interference affording the only means from which permanent benefit may be expected. The operation that is least objectionable and most promising is posterior linear proctotomy, which consists briefly in introducing the point of a bistoury through the opening and cutting downward and outward in the median line, completely dividing not only the stricture itself, but all the structures between it, the tip of the coccyx, and the posterior anal margin. The large triangular wound is packed with gauze and made to fill in by granulation. During healing, the dressings should be often changed and the parts frequently irrigated with an antiseptic solution. At first there will necessarily be incontinence, but as the wound heals, control will be regained and, with proper care, completely in most cases. Bougies should be passed daily during the healing process, and thereafter at such intervals as may be required. The operation should not be performed when the stricture is slight and there is reasonable hope of success by treatment with bougies alone, or when it extends so high as to render it impossible to fully divide it. Two cases are reported.

24.—See abstract in JOURNAL, June 10, p. 1320.

25.—Ibid, p. 1321.

26.—Ibid, June 3, p. 1254.

28. **Revaccination.**—Payne's paper is notable in that he very decidedly objects to revaccination, claiming that it is never necessary if it has once been performed successfully.

31. **Treatment of Appendicitis.**—In any case of appendicitis the important question is whether operation is imperatively demanded, and Ladd has adopted the following rule, which he here offers in answer to this question: Operation is demanded early in any case of appendicitis where any of the symptoms are severe. For example, if repeated vomiting, especially high temperature, very rapid pulse, severe or persistent pain or tenderness to pressure are any one of them especially prominent in any one case, the indication is that there is something more the matter than a simple mucous inflammation within the appendix.

33. **Post-Operative Hernia.**—The occurrence of post-operative hernia and its high percentage of frequency have induced Shimonek to review the subject and endeavor to point out the special measures for prevention. These he sums up as follows: The careful approximation of like tissues; strict asepsis; gentle manipulation; avoidance of the use of antiseptics; avoiding the constriction of the edges of the wound; allowing sufficient time to elapse before the patient is permitted to assume the upright posture; the use of slowly absorbable or non-absorbable suture materials for buried sutures.

34. **Throat Cough.**—In this article Bach limits himself principally to the subject of coughs due to irritating adenoid hypertrophies. The most frequent of these, which he finds producing the symptoms, are those situated immediately behind the posterior faucial pillars, extending up and down for about half an inch at the junction of these with the pharyngeal walls. In this region they are subject to constant irritation and strain and are generally exceedingly sensitive and irritable. The careful application of a bead of chromic acid or the galvanocautery point will in one treatment often cure this cough. Another area only second in importance is that in the lingual, or more rarely, faucial tonsils. This form of irritation is most frequently met with in children between 4 and 10 years of age, whose general condition favors adenoid growths. A few applications of 3 or 4 per cent iodin solutions in glycerin, or better, the ablation of a portion of the growths by the cautery or snare will relieve the symptoms. The third location is the post-nasal pharynx where the same irritation through reflex action may even produce attacks of asthma.

42. **Appendicitis.**—Viewing appendicitis from the standpoint of a country doctor, Davidson holds that the appendix is not an entirely useless organ, though we may not be able to explain or determine its value, and he favors conservative treatment in cases of recent acute appendicitis. He usually begins with 1 or 2 grains of calomel, repeated every hour for three or four doses, then follows with 60 grains of sulphate of magnesia and 10 grains of soda bicarbonate, repeating every half hour until free catharsis is established, and if pain is severe he uses inhalations of chloroform. In this way he says he has kept his patients from suffering and brought them safely through in every case.

43. **Scarlet Fever in Schools.**—Robinson's article is a plea for the appointment of school inspectors to prevent the spread of scarlet fever and diphtheria.

48. **Conservatism in Gynecology.**—Mattison pleads for more conservatism in gynecology, including under this term, however, certain operations, such as amputation of the cervix and operations to restore obstructed functions.

49. **Tooth in Nasal Cavity.**—Tyler reports a case in which a tooth was extracted from the nasal septum, the root going downward but not penetrating the roof of the mouth. It extended horizontally, directly across the nasal cavity, with its crown imbedded in the inferior turbinated bone.

51. **Posture in Reading.**—The main points in this article are the importance of having the book or paper held at the greatest distance in which a clear image can be had, which, if the vision is normal, should average rather over than under eighteen inches, also having the plane of the surface of the reading matter at right angles to the line extending from the eyes to the book. Reading in a recumbent position, Baker thinks, will be altogether harmless if these conditions are observed.

55. **Hyoscin.**—The uses of hyoscin are shown in this article by Fotheringham. He claims a wider utility for the drug than has generally been recognized, and reports five cases of senile mania, meningitis, hysteria and rheumatism in which he found it of benefit.

56. **Gynecology Among the Insane.**—Hobbs' paper is a defense against certain criticisms that have been made on the extensive gynecologic work done in the London (Canada) asylum.

57. See abstract in JOURNAL, June 24, p. 1440.

60. **Depopulation of Infected Towns.**—Haralson discusses the question as to the advisability of the plan of abandoning yellow fever infected towns as suggested by the United States Marine-Hospital Service, but criticises its methods, especially as to the shortness of detention in camp. The principle is correct. The disinfection of a town left to itself will require about ninety days. Depopulation, followed by rapid and thorough disinfection and fumigation, could completely rid a town of infection in thirty days, and thus save many lives and sixty days of business in the town. The time for this action is not when the first case occurs, or the first few cases if their location and sources are known and the balance of the community protected against it. In this case the disease could be stamped out. But if the disease is scattered throughout the town, without known origin, the time has come for people to move, and a thorough system of sanitation should be carried on. After the sanitation is complete—it should include everything, disinfection, cleansing, etc.—the people may return. He gives an account of his experience with Oxford, Miss., last September, in this way.

64. **Widal's Test Results.**—Gehrmann gives the experience of the Chicago Health Department with Widal's test in typhoid fever. In all there were 715 cases observed, 570 clinical reports returned and 353 reports of the occurrence of typhoid reaction sent in. In 232 of these clinical ones, diagnosis of typhoid had been made. These tests were made with the dry blood specimens, which were the most practicable under the circumstances. Gehrmann is inclined to believe that this method is of considerable value in diagnosis and warrants a continuance, by the Department, of the practice of receiving and testing dry blood specimens sent in by practitioners. The small percentage of failures is, however, sufficient to render necessary attention to the following conditions: Close observation of the directions sent out by the Department; several examinations in cases where one or two do not seem sufficient, and the exclusion of normal and pseudo reactions in the laboratory by testing further dilutions of the blood solutions.

68. **Medical Legislation.**—Krauss' address reviews the medical laws of the country and urges further advance in this direction.

69. **Mountain Fever in East Tennessee.**—Chance describes a form of fever which he has met with, for the past eight years, in the mountain regions of East Tennessee. It seems to be a form of typhoid with, perhaps, some special features. His treatment, deduced from experience, consists largely in the use of intestinal antiseptics. To any one who claims that the sulphocarbolates are useless, he would reply that he does not use them in cases such as his or did not use them properly. Antiseptic treatment includes disinfection of the patient, bed, house, water-supply and excreta.

73. **Examination of the Stomach.**—In this article, the fourth in the series, Graham notices the various physical signs connected with the condition of the stomach, including the general aspect of the patient, the condition of the skin, tongue, teeth, pharynx, neck and abdomen, more especially the latter, by palpation, percussion and direct gastroscopy.

78.—See abstract of this paper, originally printed elsewhere, in JOURNAL, May 27, par. 22, p. 1164.

81. **Summer Complaints in Children.**—Considering these disorders as actual infections, Allen advises thorough disinfection as an important part of the treatment. The stomach should be emptied, but Nature generally does this. It should be a routine practice in the beginning to give frequent, small doses of calomel. Opiates should be given very cautiously, if at all. Subnitrate of bismuth in large doses is always in order. Salol is often of great benefit, but should be watched and the urine frequently examined. He likes the combination of salicylic acid and bismuth very much, and has at times had good results from very minute doses (1-4800 gr.) of arsenite of copper. Betanaphthol and resorcin are also worthy of consideration. Liquid taka-diastase is recommended when foods disagree. Coal-tar antipyretics should not be used; cold applied over the stomach and head is better and not so depressing. An occasional dose of castor-oil, to thoroughly cleanse out the alimentary canal, is advised. Stimulants should be kept up regularly, and when the fever has subsided and temperature is not above 100 degrees drug treatment should be stopped, and diet and colon irrigation alone depended on.

89. **Lessons in Neurology.**—Moyer here considers typhoid neuritis, goiter, with development of constitutional symptoms, and ataxia paraplegia.

93. **Hallucinations of the Dying.**—Chenoweth discusses the phenomena of death, more especially the hallucinations which he naturally credits to pathologic causes, toxic or other abnormal conditions of the blood, etc.

94. **Diabetes Mellitus.**—Kenner lays down the dietetic management of diabetes and its drug treatment. As regards the latter, he finds no remedies better than arsenic and opium. Arsenic he gives in the form of a solution of the chlorid, continuing it throughout the entire treatment. Opium he gives in the form of codein in doses of from .5 to 4 grains, usually in one dose at bedtime, but occasionally more frequently, when indicated. He claims that with proper attention to the dietetic rules, and with the medical treatment he describes here, a great proportion of cases will recover. In his own experience he has had, he says, 75 per cent. of absolute recoveries.

97. **Aortitis.**—Hoover's article is a general description of the diagnostic points of aortitis, illustrated by four cases. The intolerance of the common cardiac remedies in this disorder is noted. Iodid of potash, in small doses, and nitroglycerin are the only drugs that are well tolerated in his experience. Digitalus, strophanthus and strychnia seem to be positively harmful.

98. **Digitalis and the Heart.**—Waters' article calls attention to the value of digitalis, and he thinks that its sphere of usefulness is much wider than has been commonly supposed in heart disease. It is certainly not limited by its value in organic diseases alone. As regards its supposed dangers, he considers them practically insignificant when the drug is intelligently prescribed.

100. **Recognition of Blood Changes.**—Shoemaker's address has for its principal themes the auto-intoxication or toxic products in the blood, and the necessity of attention to this subject by physicians.

101. This paper was published in full, in the JOURNAL, April 29.

102. **Nature of Xanthomata.**—In this article, which is well illustrated by microphotographs, Pollitzer discusses the nature of xanthomata, first pointing out the difference between that form occurring on the eyelids and the common multiple xanthoma. The former is a very common disease and is apparently incurable. The latter is exceedingly rare and is always of limited duration. He thinks it well within the limits to estimate the proportion of the eyelid to generalized xanthomata as 100 to 1, and he rarely finds the two conditions associated. He, therefore, is inclined to believe them wholly distinct diseases. His conclusions are as follows: 1. Xanthoma palpebrarum vulgare is not a neoplasm; it is the product of the degeneration of embryonically misplaced muscle fibers. 2. It bears no histologic relationship whatever to xanthoma tuberosum disseminatum. 3. The common xanthoma tuberosum and xanthoma diabeticorum are similar processes. 4. They are both connective-tissue neoplasms in which the relative proportion of fibrous tissue and connective-tissue cells varies in different cases. In both the cells undergo a fatty degeneration, resulting in the destruction of the cells and ultimately in the more or less complete disappearance of the nodule. The process is more diffuse and the degeneration more rapid in the diabetic form. 5. Generalized xanthoma is an irritative process whose cause must be sought in some systemic disturbance.

103. **Ophthalmology and General Medicine.**—The relation of opthalmology to general medicine is discussed at length by Lewis. It would be impossible to abstract a paper made up of details as is this one, but it may be said that he attributes the prevalence of nervous diseases largely to eye strain due to civilization.

104. **Chronic Malarial Infection.**—Noting the recent discoveries in regard to malaria, and the change of views thereby necessitated, Thomson calls attention to the parasite in the blood in the production of chronic malarial infection, and re-

marks in regard to the treatment. He thinks that latent malarial infection is of more importance than seems to be generally realized, and the necessity of proper treatment is thereby emphasized. He notices that fact of individual idiosyncrasy and gives a sketch of the treatment he recommends: 1. Mercurial laxative given toward the close of febrile paroxysms and made to act within six hours. The advantage of this is that it prevents intestinal self-infection and favors the absorption of quinin, which is an unstable alkaloid in the alimentary canal. The quinin itself should be given as nearly as possible at the time of sporulation of the parasite, i. e., shortly before time for the chill, and he prefers to give the doses in three equal parts, an hour apart, the last from one to two hours before the expected paroxysm. It has been a matter of common experience in the tropics that the action of quinin is favored by addition of spices. The success of Warburg's tincture possibly depends on this fact. He therefore gives powdered ginger and quinin in equal quantities. Pulverized capsicum is sometimes given, 1 grain to 4 of quinin. In some cases, when quinin seemed to fail, he has given paregoric as an adjunct, with good results. This was given in three daily doses of ½ ounce each with doses of 15 grains each of quinin and ginger twice daily. The results of this treatment were strikingly good and one of the most notable was the antilethargic action of the paregoric in this case. Instead of being stupifying it was stimulating.

105. **Phthisis.**—Barney treats phthisis with special attention to the nutrition, caution as to infection, plentiful supply of fresh air in bed rooms, good climatic surroundings, cold sponge baths in the morning, and a climate that allows plenty of open air exercise. He thinks isolation useless and damaging. Hemoptysis is treated by making the patient comfortable, administering morphin and atropin hypodermically and local application of ice. Guaiacol is the most efficient medical agent we possess; give in small doses gradually increased. In cases where there is high fever he uses phenobromate in 5-grain doses, and thinks it a superior antipyretic and analgesic to the other coal-tar preparations commonly used.

106. **The Term Appendicitis.**—Ellis' paper is a defense of the use of the term appendicitis as being convenient, and its change to other words on account of the necessity of Greek purism not needful.

107. **Disinfection for Tuberculosis.**—This article is a plea for the municipal control of the disinfection of departments occupied by tuberculous patients. Sanitation and disinfection left to landlords and boarding-house keepers is apt to be very inefficient, and the only remedy will be to have it thoroughly under the control of an efficient local board of health.

108. **Advice to Gonorrheal Patients.**—In treating either the acute or the more chronic forms of the infection, Valentine suggests that the patient be instructed to refrain, as many hours as possible from urinating just before visiting his physician, to enable the medical adviser to better judge the character and quantity of the discharge, and obtain specimens for examination under the microscope, also to obtain the first urine passed for shreds, flakes, granules, etc., findings that are most important to correctly judge of the concealed conditions present. The diet is to be limited only to the exclusion of indigestible foods. All alcoholics are denied, excepting in such cases as present especially low states, when the use of a light claret may be allowed. Carbonated waters are forbidden, but tea and coffee are allowed. Copious draughts of water are to be insisted on. Exercise is always to be taken in moderation, but this moderate exercise is to be insisted on, thus preserving the general health. In treating male cases, a suspensory is always to be advised and the patient fully informed regarding general hygiene, the danger of auto-infection, as well as instructed on the danger of sexual excitement, and the prohibition of intercourse.

109. See abstract in JOURNAL, April 29, p. 941.

112. Ibid, June 17, par. 53, p. 1381.

113. **Lipoma.**—Horsley reports the removal of a diffuse lipoma situated on the anterior and lateral aspects of the neck; the growth had been gradually increasing for twenty years and had attained such proportions that respiration was retarded. The tumor was exposed by the Kocher incision, consisting of a transverse incision commencing under one ear and extending obliquely over the tumor, terminating under the opposite ear; this was joined at the median line by a vertical incision extending downward. Under careful dissection the tumor was completely removed and all symptoms relieved; the paper is illustrated by four plates.

114. **Lectures on Orthopedic Surgery.**—Ridlon and Jones consider the symptoms and diagnosis of hip-joint disease. Methods of examination are graphically represented by numerous plates. The paper is a continuation of articles previously published.

115. **Pathology of Catarrhal Deafness.**—A large proportion of the cases of chronic catarrhal deafness, Hinkel concludes, have their origin in the hypertrophic forms of middle ear disease; the prognosis he considers often favorable; with prompt and careful treatment the condition is frequently helped, and at times cured. The prophylactic treatment in early life is to aim at the removal of adenoid, tonsillar and nasal obstructions.

116. **Involvement of Eye and Ear in Cerebrospinal Meningitis.**—Reference is made to the epidemic form of meningitis. Edema of the lids and conjunctiva may occur either early or late in the course of the disease, and may occur by simultaneous invasion of the orbital tissues and meninges, or by extension through the superior orbital fissure. Involvement of the motor nerves is more common; this involvement may be due to irritation or may be truly paralytic. Conjugate deviation is sometimes present. Nystagmus is rare, photophobia common, especially so when general hyperesthesia is present, xerosis of the cornea, corneal ulcers, herpes, as well as infiltrations following exposure of the cornea. The iris is usually dilated, partially due to increased pressure. Iritis, simple or accompanied by involvement of the ciliary body and choroid, is sometimes found. The choroidal inflammation is frequently of a seroplastic nature, eventually becoming purulent. Involvement of the choroid may be due to metastasis. The optic nerve may be attacked by direct infection, extension, or metastasis, an optic neuritis being found in the majority of cases, and to this complication the loss of sight in a large proportion of these cases is due. Deafness resulting from epidemic cerebrospinal meningitis does not increase after the subsidence of the disease; the hearing is often eventually improved, if the labyrinth alone is involved.

117. **Treatment of Malaria.**—Center treats of malaria, considering it a generic term, including several distinctly separate manifestations of the disease, caused by distinct and different parasites. These organisms—the plasmodium malariæ—differ in age, habits, and in morphologic characteristics, each variety with an individuality of its own. He calls attention to the necessity of selecting such remedies in treating the various forms of the disease as are found to inhabit or destroy that variety of organism responsible for the condition under treatment. The cases of estivo-autumnal fever are to be treated not alone by quinin but quinin combined with arsenic. During convalescence the use of chlorid of iron is advised.

118. **Typhoid Cases at U. S. General Hospital.**—A review is made of the treatment of 412 cases of typhoid treated at the U. S. General Hospital at Fort Monroe, Va., during the summer of 1898. The treatment these patients received did not differ materially from the ordinary hospital treatments, excepting that no baths were given, even in the cases running a high temperature. Stimulation was given in the form of strychnin in every case; whisky and some other forms of stimulants only in special cases. The mortality was 7.5 per cent. Anderson claims priority in the treatment of collapse following hemorrhage of typhoid, by transfusion. He used the normal salt solution in one case, introducing as much as three pints into the median basilic vein, with good results.

119. **Fatal Case of Scurvy.**—The case, reported by Bassler, is of interest in that it occurred in an infant 1 year of age, and that the report of autopsy is appended. The child was nourished artificially after the second month; the diet, changed from time to time, included barley water, oatmeal water, and modified cow's milk; all foods were boiled. In the fifth month the first symptoms appeared: intermittent bleeding from the mucous membrane of the vagina; the first incisors were cut in the tenth month. Anemia was well marked early; legs be-

came flexed and powerless; pressure over the lower end of the femur and upper end of the tibia caused pain; the gums were characteristic; teeth loose; hemorrhage from the gingival junction. Autopsy showed scarcity of fat tissue all over the body, heart slightly enlarged, mitral valves partially destroyed; the heart muscles showed fatty changes. The lungs showed a condition of chronic bronchopneumonia in the lower lobes. The kidneys and liver were slightly enlarged and presented fatty changes. Examining the long bones, the periosteum was found raised from femur, fluctuation distinct, and, when incised, a thick grumous blood was forced out with a jet, having apparently been retained under pressure. The changes observed in the tibia were thickening and congestion of the periosteum near the upper extremity of the bone.

121. See JOURNAL, July 8, par. 122, p. 93; July 15, par. 115, p. 157.

122. **Blood Examinations.**—Hewes' paper is a continued one and will be noted more fully when completed.

123. **X-Ray Examinations in Children.**—Williams emphasizes the usefulness of the X-ray examinations in children. They are more easily penetrated by the rays and caution should be taken to avoid too much light on this account. In some cases of pneumonia, especially in the early stages, the X-ray may be of decided value in the diagnosis, also in cases where the symptoms suggest tubercular meningitis, and in pleurisy with effusion or empyema. The size and position of the liver and spleen are more readily determined than with adults, as is also the case with the kidneys, especially the left one. By giving subnitrate of bismuth with bread and milk, changes in the size and shape of the stomach after a meal may be followed. Investigations on these points have been made in conjunction with Mr. W. B. Cannon, which are yet to be published. There need be no fear of untoward effects if proper precautions are used. Williams has had none in about 3000 examinations.

124. **Summer Diarrhea in Infants.**—The essentials in the treatment of this disorder, according to Chapin, are: prevention, which is brought about by the proper regulation of the milk supply, the providing of small parks or airing places for children in large cities, extra cleanliness in the home, frequent bathing. He would allow the child to play in a tub of tepid water for hours at a time, and in general a bottle-fed baby should have less bulk of food and a higher dilution of milk in very hot weather than it is accustomed to under more favorable conditions. He prefers boiling or pasteurization to sterilization of milk. The first signs of any gastric or intestinal indigestion should be looked for and checked before any marked diarrhea appears. In the dietetic treatment, as most cases are due to milk poisoning, all forms of milk must be temporarily withheld and many a summer diarrhea might be aborted if this were done for from twelve to forty-eight hours. If this has to be kept up long, one of the best substitutes is egg water, made by stirring the white of an egg in half a glass of cold water, and he adds to this, to overcome its tastelessness, about ten drops of aromatic spirits of ammonia, which also seems to check the stomach irritation. Other substitutes are thin gruels from barley or wheat flour and cold whey. If milk has to be kept away for several days, mutton broth with all the fat carefully skimmed off is also a good substitute. When the acute symptoms have subsided and milk is resumed, it must be given cautiously and at long intervals and highly diluted. A barley water or thin gruel are the best diluents. Medical treatment is often of less importance than dietetic, but in vomiting drafts of tepid water should be given, which, when rejected, washes out the stomach. It is rarely necessary to use the tube for this purpose. He usually gives 1-10 of a grain of calomel every hour for six or eight doses, which usually clears the canal. Enemas of normal salt solution may also hasten this. The drug he most relies on is bismuth subnitrate, but he also uses small doses of aromatic spirits of ammonia, 10 to 20 drops, which seems to stimulate the infant. Alcohol is given very sparingly, and only when free stimulation is required. Opium is contraindicated until the bowels have been thoroughly emptied and when cerebral symptoms threaten. In cases, however, in which rapid peristalsis and profuse glandular secretion persists, a few moderate doses of opium may be of great service and even save life.

125. **High Altitudes in Heart Disease.**—Babcock reports nine cases illustrating the effect of high altitudes on the heart and circulation. The paper ends with the following conclusions:

1. All forms of cardiac disease do not contraindicate sojourn at a high altitude.

2. The ill effects of low atmospheric pressure in some forms of cardiac disease are explicable on the hypothesis of acceleration of venous flow and corresponding quickening of the heart beats.

3. Consequently those forms with which high altitude is likely to prove incompatible are pronounced aortic or mitral stenosis, and regurgitant disease complicated by pleural and pericardial adhesions.

4. On the other hand, patients with uncomplicated regurgitant lesions or arteriosclerosis with or without myocardial changes, may endure low atmospheric pressure without injury.

128. **Diseases of Sinuses.**—The parts, the diseases of which are here described, are the frontal sinus, the antrum or middle meatus, the ethmoid and sphenoid cavities. The disorders of the frontal sinus are empyema and tumors, the former of which requires early opening and injection of bactericidal solutions with free drainage and checking the suppurative process. Tumors of the frontal sinus are usually osteomata, and their treatment is solely by operative removal. Empyema of the antrum is usually the result of dental or alveolar disease, though it may be the result of inflammation in any of the adjoining parts. Its extension to the orbit is usually the result of an osteoperiostitis of the orbit floor which is very thin and often shows openings through which infection may occur. The diagnosis is here discussed and methods of elimination of the antrum described. The only curative treatment is to open the antrum and evacuate its contents and employ frequent antiseptic irrigation, and when suppuration has been completely abolished, endeavor to close the artificial opening. Tumors of the antrum, which are difficult to diagnose until they have produced pressure symptoms, are to be treated by complete removal involving a resection of the bony parts that may be diseased. The nasal meatus is most commonly affected by a purulent rhinitis, usually secondary or associated with purulent processes in the ethmoid cells or antrum, and the treatment must be directed in this case to those cavities. If advanced to the meatus, prompt curetting and removal of the diseased bones is the treatment recommended. Its tumors should be extirpated early in their development, but if a malignant tumor has already invaded the deep bones of the face and base of the skull including their cavities, the case is hopeless and interference would probably hasten the fatal termination. Ethmoid disease is perplexing in its symptoms and difficult of diagnosis. Its etiology is apt to be obscure. The treatment in all cases of empyema is free opening, curetting, irrigation and drainage. Tumors of the ethmoid are usually of a sarcomatous or myxosarcomatous variety, though other forms are met with, such as enchondroma, fibroma, osteoma, etc. The only treatment is removal. The sphenoid antrum is subject to the same diseases and the symptoms are much the same as those of the adjoining cavities. In empyema the headache is located at the back of the head and the involvement of the different nerves is to be noted. Tumors here may have no subjective symptoms or there may be severe occipital pain. If the process extends there may be blindness due to compression of the optic nerve, and if the growth extends into the cranial cavity and is rapid, meningitis or cerebral abscess will result. Sarcoma is the most frequent malignant growth. In ending his paper, Bull repeats the following conclusions published some years ago and states that his experience has led him to still further emphasize their importance: 1. The prognosis of all forms of malignant orbital tumors is unfavorable; and if the tumor is primarily one of the deep facial bones or their sinuses, the prognosis is positively bad. 2. With the single exception of encapsulated tumors of the orbit, surgical interference is almost invariably followed by a return of the tumor, and the growth of the secondary tumor is more rapid than that of the primary lesion. With each succeeding operation the period of quiescence in the return of the tumor grows shorter and the rapidity of growth increases. 3. The patient's family, and in certain cases the patient himself, should in the beginning be told of the serious nature of the trouble and be warned that complete removal of all diseased parts is a hopeless task. The burden of the de-

cision as to surgical interference must rest on the shoulders of the patient. 4. Repeated operations in these cases undoubtedly shorten the life of the patient. While it is our duty, therefore, to operate in all cases in order to relieve severe or unbearable pain, we should be slow to operate merely for the sake of temporarily relieving physical disfigurement or deformity, especially if we are convinced that by so doing we shorten the life of the patient, even if that shortened life is rendered more bearable.

130. **Methods in European Hospitals.**—Miller describes his observations of methods of asepsis and antisepsis, etc., of the various operators in European hospitals, including those of Hamburg, Berlin, Leipsic, Dresden, Vienna, Budapest, Prague, Paris, Brussels and London. He remarks a striking contrast in the temperature of the operating-rooms in Germany and France and England. [Some of his brief descriptions are hardly complimentary to the latter in some respects. Results, however, seem to be less different than one would expect, were all the precautions of the Continental surgeons necessary.—ED.]

131. **Cardiac Murmurs.**—Coleman publishes an ingenious diagram, including not only the events of the full cardiac cycle but also their association with murmurs. It consists of a series of concentric circles representing, in order from within outward, the chambers of the heart, sounds and time, valves and murmurs. The diagram has been constructed, as he says, chiefly with regard to simplicity, that it may be used for clinical and didactic purposes generally.

132. **The "Kissing Bug."**—Burrall reports a case of a middle-aged man who called for treatment of an eruption on his left forearm, consisting of long vesicles with swelling of the wrist and back of the hand, causing pain on movement and a diffuse, red, erysipelatoid discoloration from the wound to the bend of the elbow, covering nearly half the circumference of the forearm. There was little constitutional disturbance or complaint of pain. The eruption was supposed to be the result of a bite of a "kissing bug," and was rapidly relieved by painting the inflamed area with tincture of iodin and internal administration of calcium sulphid. Carbolic acid ointment was also used on the parts. [This is the first medical report we have noticed of the bite of the so-called "kissing bug."ED.]

FOREIGN.

British Medical Journal, July 1.

Possibility of Extirpating Malaria From Certain Localities by a New Method. RONALD ROSS.—First remarking that experience has taught us, in various countries, that malaria can be banished by drainage and cultivation, Ross says that there are still some regions in which, in spite of both of these factors, malaria is still prevalent in its most virulent form, and he asks whether science cannot give us some more accurate means of detecting the precise cause of malaria in such regions, and after discovery, of removing it. We now know how and where the parasites live in external nature, and how they enter the system. We know that it is through mosquitoes that they enter the blood, an idea which has been extant for many years, but which has only lately received scientific confirmation. In 1894 Dr. Patrick Manson, noticing certain peculiarities of the parasite, suggested that it required a suctorial insect for its further development. In 1895, Ross began his experiments, and in 1897 he succeeded in cultivating the parasite of malaria in two species of mosquitoes, while in 1898 he completely worked out the life cycle of this organism. The observations have been carried out by numerous investigators and valuable details added, so that at the present time we have the knowledge that is first required of the natural history of the infection. It is sometimes said that malaria exists where there are no mosquitoes, but no case of the sort has yet been proven. The fact that we require these mosquitoes only for the first infection, must be remembered; persons once infected may carry the disease elsewhere to develop it. Many of those who accept the mosquito theory have emphasized the value of individual precautions, nettings, fans, etc., and while something can be done in this line, these do not touch the real points and more practical methods must be sought. Ross notes, from his own experience, that private houses may often be kept clear of mosquitoes by simply banishing stagnant water from the premises, and fortunately we do not have to fight all species of mosquitoes in our battle with malaria. The ordinary *Culex* is inoffensive in this respect, and it being the common insect about towns, breeding in tubs and pots, explains why malaria is often less malignant there than in the country. Mosquitoes of other kinds, however, *Anopheles*, which he calls rural mosquitoes, are found in the country and breed only in stagnant pools. These are the propagators of malaria, the hosts of the malarial parasite. The conditions they require are stagnant pools that do not dry up completely in the summer, are not subject to be washed out by rains, and yet are too small to contain fish, which would eat up the larvæ. Such conditions only exist to the full extent in country districts, and the following statements, having a practical bearing, may be made: We can detect the dangerous species of mosquitoes in a given locality by a perfectly certain method, namely, by ascertaining according to Hanson's induction whether the parasites of malaria will live in them or not. We can detect their breeding grounds by searching for their larvæ. In order to obliterate pools which breed dangerous mosquitoes, they must be filled up or drained. The question as to whether it is possible to eradicate malaria in any district depends on whether these varieties are sufficiently isolated and rare to be dealt with by public methods of repression. It is impossible to give a full answer to this question. We do not yet know all the dangerous species or their habits, but Ross is inclined to answer it in the affirmative.

Some Points Connected With Sleep, Sleeplessness and Hypnotics. JOHN BUCKLEY BRADBURY.—The second lecture on hypnotics deals largely with the chemical action of hypnotics of the fatty type, including the alcohols, the chlorin compounds, etc. It is impossible to abstract it in detail.

Sequel to Case of Acute Tetanus Treated by Intracerebral Injections of Antitoxin. WILLIAM F. GIBBS.—This communication is a sequel to one published in the *British Medical Journal* of April 15, where apparently successful results were obtained by intracerebral injection of antitoxin in a case of acute tetanus. Unfortunately, after the disappearance of all tetanic symptoms, the patient again became suddenly ill and died on May 5, eight weeks after the last injection, showing decided meningitis and abscess of the brain. Bacteriologic examination showed the presence of cocci in considerable numbers, having all the appearance of the staphylococcus pyogenes aureus. As everything that could be done to insure asepsis in the injection was employed, he doubts infection through the serum, but thinks that damage to the brain, from the injury, would predispose to subsequent infection.

Lancet, July 1.

Importance of Plastic Surgery in Renal Distension (i. e., Nephritis). HENRY MORRIS.—This article is a general discussion of the operative treatment of ureteral stenosis, profusely illustrated and with tabulated cases, including five personal ones of the author's.

Operative Treatment of Eyes Exhibiting High Degrees of Myopia. RICHARDSON CROSS.—Noting that slight degrees of myopia are of little annoyance, while a moderate amount is a disadvantage, and that in the higher degree we have a serious defect of vision, and not infrequently a damaged eyeball, the author shows how oculists are justified in recommending somewhat heroic measures in order to remedy the condition. He gives a brief résumé of the operations that have been suggested, and especially notices the contribution by Fukala on this subject. It is now agreed that removal of the lens is the only operative procedure likely to be of service, and he remarks on the degree of advantage of this operation. Each case must be judged by itself, and in the linear extraction it is necessary to specially guard against prolapse of the vitreous and iris. He does not think that the danger of detachment of the retina is as great from this operation as has perhaps been supposed. He would be very cautious about operation on a person with only one eye. The need of the operation is greatest in those who have to depend on themselves for a livelihood; the condition unrelieved may mean loss of employment. It is difficult to estimate the amount of improvement in distant vision, but making allowance for the difficulty the patient finds in wearing the best corrective glasses, and his distinct preference for wearing none, the gain is probably greater than that expressed

in figures. As a rule we do not gain improvement in vision for reading, but certainly do in a few instances. He gives a tabulated statement of forty-eight cases in which he does not regret having performed the operation in one, though no unfavorable cases are excluded.

Some Surgical Sequelae of Influenza. WARRINGTON HAWARD.—The author here notices some of the notable sequelae of influenza, suppuration of the lymphatic glands, inflammation of the mucous membrane of the throat, and nasal, maxillary, and frontal sinuses, suppuration of the middle ear, synovitis, boils, neuralgias and residual abscesses. The tendency of influenza is also to provoke into activity quiescent tuberculous or other chronic forms of joint trouble, and one of its most remarkable effects, to which he wishes to call special attention, is the active recrudesence of latent syphilis to which it gives rise. He thinks, in this case, calomel vapor baths will be found the most efficacious treatment.

Three Cases of Chronic Mediastinitis. CECIL BOSANQUET.—The author first refers to the paper of Dr. Whipham (*Lancet*, April 1 and 8), showing how small a number of cases of this affection are recorded, and takes this as a reason for offering the history of three cases personally observed, all of them with autopsies. The patients were all boys, their ages 8, 15, and 6 years respectively. In none of them was the diagnosis made on first admission. The duration of the disease, after definite symptoms had appeared, was about two years in the first two cases, and in the last the signs attributable to the mediastinal disorder only appeared three months before death, though the total duration of the patient's illness was about two years. The most striking clinical feature is the great enlargement of the liver. In all it was found in a state of very chronic congestion that had passed beyond the nutmeg stage into one of general engorgement, pigmentation and fibrosis with some fatty change. In the first two cases the heart was small, the walls thin and fibrous. In the last it was not reported. Pleurisy with effusion occurred in all three. The kidneys were much congested and in the first two cases tough from increase of fibrous tissues. He refers to two other cases reported by Mott that were not included in Whipham's or Harris' lists.

Indian Medical Gazette (Calcutta), June.

Cause and Prevention of Heat Apoplexy in Army. C. J. MCCARTIE.—Noticing the frequency of heat stroke among soldiers in India, when civilians are exempt, McCartie calls attention to the difference of dress, even in the tropical uniform of the British army in India, and claims it is far from suitable to the climate. The costume he would advise would be a Norfolk jacket with four pockets, loose trousers with four pockets and loose twill cotton shirts with two pockets. The pockets are to avoid the necessity of belts. A light knapsack should be used for rations and the greater part of the ammunition. In going into action, the latter can be stored in the ten pockets, the water bottle can be hooked on the coat, the bayonet hung on the frog on the waist-band of the trousers or on the coat.

Inoculation of an Entire Community With Haffkine's Plague Vaccine. C. H. BENNETT and W. B. BANNERMAN.—The authors give a brief report of the inoculation of the entire community with Haffkine's plague serum and with the result of almost absolute protection. They conclude that this measure is a prophylactic capable of completely controlling an epidemic of plague.

Indian Medical Record (Calcutta), June 7.

Treatment of Tetanus by Intracerebral Injection of Antitoxin, With Particulars of Case Treated by This Method, Followed by Recovery. D. SEMPLE.—After noticing the general facts in regard to tetanus, Semple reports a case treated by intracerebral injection with apparent perfect success. The technic is given in detail.

Medical Press and Circular (London), June 28.

Eradication of Tuberculosis. GEORGE FLEMING.—This paper, concluded from a preceding number, is devoted to the subject of bovine tuberculosis and the method of its eradication. The author takes the usual rather radical view of the necessity of extirpating the animals with the disease.

New Method of Ventilating Sewers. CHARLES A. CAMERON.—The method of ventilating sewers here proposed is the use of porous cylinders set in the crown of the sewer and opening into a chamber like that used in the ordinary ventilators. As the cylinders allow air to pass freely, but bar the passage of micro-organisms the air that comes out into the streets is consequently filtered.

General Disorder Originating in Disease of Female Pelvic Organs. MENDES DE LEON.—The theme of this address is the general disorders due to affections of the female genital organs in women, and covers nearly the whole range of the subject. As regards mental disorders from these causes, he is somewhat moderately conservative in his views.

Brazil-Medico (Rio), May 15 and June 8.

Arsenious Acid as a Preventive of Yellow Fever. I. DA ROCHA.—Dr. J. P. do Rego Cesar noticed that non-acclimated persons in Brazil, who had occasion to take arsenic for any reason, were not molested by yellow fever, and he commenced to administer it as a preventive, with most satisfactory results, confirmed by the experience of other local practitioners. Da Rocha reports, in this article, the results of daily prophylactic doses of half a milligram of arsenious acid administered during the summer season to the entire force of a certain factory, over 200 men, for the last five years. The men are frequently changing, are mostly unacclimated, live in unhygienic surroundings and infected localities, and take no precautions against contracting the disease. During the terrible epidemic of 1894, three of them were attacked but soon recovered; exceptionally light cases among the prevailing mortality. In the epidemic of 1896 twenty men contracted the fever a few days after their admission to the factory, each having received only a few doses of the arsenic. But the effects were evident in the benignity of the cases, all dismissed from the hospital in from four to six days, while a couple of extra hands only rarely employed and thus not receiving the arsenic regularly, succumbed to the disease. There have been no cases in the factory since 1896, although yellow fever has scourged the city again and again, and formerly ravaged the factory. Another group of 150 men, to whom the prophylactic doses were regularly administered, have also escaped without a single case. Persons just arriving are advised to repeat the dose three times a day the first week, twice a day the second, and thereafter once a day. No one thus treated has contracted the disease to date.

Bulletin de l'Academie de Medecine (Paris), June 13 and 20.

Arsenic and Respiratory Interchanges. A. ROBIN.—Tests with five tuberculous patients to whom sodium arseniate (.005 grams a day) was administered, or rectal injections of Fowler's solution (5 c. c. of an 8 per cent. solution), demonstrated that the effect was to materially diminish the respiratory interchanges, but when the dose was increased to .01 gram a day, the effect was exactly the reverse.

Differences in Tracings of Various Sphygmographs. H. HUCHARD.—"No two sphygmographs can be used interchangeably, as they produce entirely different results even on the same patient." Marey recommends taking the tracings as small as possible, enlarging them later if necessary, thus reducing the liability to error from the inertia of the lever. Huchard recalled that the last international congress of physiology appointed a committee to collect the testimony of the most competent men in each country to establish a uniform type for the construction of physiologic instruments, and report in August, 1900. Dr. Bowditch is the American member of this committee. "It is hoped that physicians will be guided in their choice of instruments, by the recommendations of the committee.

Advantages of Creosote in Tuberculosis. C. SAVOIRE.—The novel point in this communication is that very large doses are tolerated without the slightest inconveniences, for months at a time, if there are no pre-existing gastric troubles, and the therapeutic effect is correspondingly enhanced. As much as 6 to 10 and even 15 grams a day were administered for months.

Imperfect Vaccination. J. CARTERET.—Heifers, inoculated with serum from "doubtful" or "unsuccessful" vaccination pustules, reacted, showing that these pustules are more "successful" than hitherto supposed, and a second heifer inoculated with serum from the first, developed typic pustules, as also persons inoculated with it. These same persons, afterward inoculated with ordinary lymph, proved to be completely immune. "The degree of the reaction evidently depends on the individual, and all pustules are specific, and are evidence that the subject is protected."

Journal de Medecine de Paris, June 25.

Tuberculosis. BOUCHER.—This iconoclast states that nothing but inconsistencies and nonsense resulted from the deliberations of the Tuberculosis Congress: Frankel, for instance, the rabid partisan of contagion by the bacillus, announced that these bacilli, outside of the human organism, cease to multiply and perish rapidly when exposed to light and desiccation. And yet, desiccated sputa are claimed to be extremely virulent! Loeffler announced the direct transmission of the tubercle bacillus from the mother to the fetus, but added that this did not occur unless the mother's genital organs had some tuberculous lesion. These are the bases on which rests the theory of heredity and contagion! This bacillus theory, he continues, was exploded long ago: Strauss, Dieulafoy and others have found the so-called tubercle bacillus in the organs of persons who never presented the slightest tuberculous taint during their entire existence. Middenkorp's observations, "kept rigorously secret," demonstrate that the Koch bacillus is not found even in the tubercles of any tuberculous affection of any organ whatever. In many cases of tuberculosis it is impossible to find a Koch bacillus and, in short, this bacillus has nothing to do with tuberculosis in the pathogenic sense, as Solles, Bang, Hersberger, Ernst and Durr have fully demonstrated, as also the personal research of the writer, "which has established that the famous bacilli are nothing in fact but fragments of mycelium derived from the air cells, proceeding from innumerable species of marine, fluvial and lacustrine algæ, which we are continually absorbing, and which arriving from without, free from noxious properties, proliferate, become transformed in the infective media in which chance deposits them, and assume at the same time and most fatally, the properties of these media. This is the scientific truth, in harmony with logic, with all that experience has taught us, and with sound reasoning."

Berliner Klinische Wochenschrift, No. 21.

Blood Spitting in Tuberculosis. C. GERHARDT.—The rupture of some ramification of a pulmonary artery passing through a cavity is usually the cause of the blood spitting and also of infiltration of the lung tissue with blood, producing râles and dulness. In 879 cases observed blood was expectorated in 30 per cent., and over half a liter in 15 per cent. If the temperature afterward rises, this is a most unfavorable symptom but blood spitting in the early stages is usually a very favorable alarm signal. Gerhardt recommends salt to diminish the blood pressure by the nausea induced, and also the production of venous stasis in the extremities with a tourniquet. Codein, morphin, heroin, opium and large doses of ergot, also injections of atropin (0.3 mg.) and inhalations of diluted solution of chlorid of iron, also quinin were found effectual in various cases.

Deutsches Archiv f. Klinische Medicin, lxiv. Festschrift.

Hysteric Fever. DIPPE.—A patient with pronounced hysteric attacks and pain in the abdomen, accompanied by high intermittent fever, was operated on but the abdomen found entirely normal. The patient was allowed to believe that the anticipated suppurative focus had been found and removed, and pains and fever vanished permanently.

Disturbances in Circulation in Infectious Diseases. I. ROMBERG.—It is evident from the numerous and carefully conducted experiments recorded, that the disturbances in the circulation in the course of acute infectious diseases are not due to weakness of the heart, as formerly assumed, but to paralysis of the vasomotors. Paralysis of the vasomotor center in the medulla oblongata alters the distribution of the blood throughout the organism: the splanchnicus vessels are gorged, while the vessels in the brain, muscles and skin are empty. 2. PÄSSLER.—The therapeutic indications therefore are to stimulate the diminishing arterial pressure by substances like caffein or coriamyrtin, which excite the vasomotor center, and hypodermic or intravenous injections of salt solution. Strychnin and ergotin are not effective except in toxic doses. 3. HASENFELD.—Malignant pyocyaneus endocarditis in animals did not produce heart weakness. The heart was able to accomplish more work than normally, and even become hypertrophied. The animals died of disturbances in the circulation caused by paralysis of the vasomotor centers. 4. HOLLWACHS.—Disturbances in the circulation in diphtheria at the height of the fever process are also due to the same cause, but disturbances occurring at later stages are produced by a secondary myocarditis.

Deutsche Medicinische Wochenschrift (Berlin), June 29.

Catalytic Effects of Galvano Current With Checked Circulation. T. BÜDINGEN.—Cataphoric medication is most effective when the circulation of the blood is arrested by an Esmarch tourniquet or similar device. Büdingen recalls the one serious disadvantage of the Bier method of treating tuberculous lesions by inducing venous hyperemia, namely, the formation of cold abscesses, which has tended to prevent the general adoption of this simple, effective, logical therapeutic measure, and caused Bier to advocate the suspension of the treatment from time to time, thus reducing the liability to the development of these abscesses, although the curative results are proportionately reduced in consequence. It is evident that the injury to the tissues which unfortunately accompanies the cure of the lesion, is due to the lack of the stimuli afforded by the circulation, and he suggests that possibly the cells in the part might be kept in normal conditions, and thus the formation of the abscesses be prevented, by stimulating them with electrolysis during the period of venous stagnation, and thus relieve Bier's method from the odium of abscess production.

Surgical Treatment of Ascites From Cirrhosis of Liver. A. E. NEUMANN.—A convincing case is reported confirming the assertions of Tilmann and Talma (see JOURNAL, xxxii., p. 1169), in regard to the benefits to be derived in case of interrupted circulation in the portal circulation by establishing collateral routes for venous circulation, if the liver cells are still capable of function. The operation is as simple and free from danger as an exploratory laparotomy, and scarcely complicates the incision to relieve the ascites.

Memorabilien (Heilbronn), May.

Biology From Vitalistic Standpoint and Its Relations to Medicine. GUIDO BELL.—"The correct understanding of what is meant by constitution and temperament is of the greatest importance as a foundation for a general theory of causes in pathology." The writer traces the branching of biology into physiology and psychology, showing how each has the same basis, and that each is mutually dependent, under the same laws, and emphasizes the point neglected by the Darwin theory, that evolution is not only a development but also a subordination to a higher whole. Constitution is defined as not the result of the uninterrupted sequence of stimuli from without, under the influence of which the organism develops and is maintained; it is not the special structure of the tissues and organs. It is rather, the capacity to develop and be maintained in a special manner, as the person of the king is not the government, which applies to the power and capacity to govern, with which he is invested. The constitution is a faculty and not a condition of bones, muscles, etc. Temperament is an attribute of the constitution: the manner of thinking, feeling, and acting, which proceeds from the organization of the individual and must always so proceed, as beauty is an attribute of the rose.

Hydriatic Treatment of Insomnia. B. BUXBAUM.—The most obstinate cases of insomnia, as the writer states, are in mental diseases, progressive paralysis, delirium tremens, etc., and it is especially in these cases that the beneficial effect of the wet pack is the most marked, but it is effectual in all cases of insomnia. The patient, lying on a blanket, is covered with a wet linen sheet smoothly folded and tucked in between the arms and legs and around the neck, so that it is in contact with every portion of the surface. The blanket is then brought up and folded over him, and he is left for three-quarters to one hour if the heart is normal. After the sheet and blanket are removed, he falls into a refreshing sleep in the course of half an hour, and within one to two weeks sleep recurs naturally at the accustomed hour, without any measures of the kind. The only precaution necessary is to apply a cold compress to the forehead beforehand. If the patient objects to the complete pack the body can be wrapped to the armholes alone, or the trunk alone. Great benefit is also derived in cases of insomnia due to gastro-intestinal as well as nervous disturbances from the wet abdominal bandage alone. The complete pack should never be given to children, as the surface is too extensive in proportion to their size.

Muenchener Medicinische Wochenschrift, June 27.

Milk Albumen, a Cheap Food for the Masses. W. PRAUSNITZ.—The abundance and cheapness of buttermilk would render it a valuable food product if it were not for its bulk and speedy decomposition. Siebold has perfected a process by which

it is mixed with sodium bicarbonate, worked at 70 C., with CO_2 introduced and the product evaporated to an odorless, tasteless powder—"Plasmon"—which can be sold at a profit for about ninety cents a kilo, and can be added to any dish, bread, etc., without affecting its flavor while immensely increasing its nutritive value. Professor Prausnitz' tests at Graz were made with the most scrupulous accuracy and double control, the feces analyzed in every case. They demonstrate that 8.07 per cent. was the largest amount of this albumin eliminated unutilized; the average, 6 and a fraction, proving that almost the entire amount is assimilated. A comparative table of the various food products on the market shows that the solubility, cheapness and constancy of the new product, with its great nutritive value and ready absorbability render it far superior to anything of the kind yet produced.

Bacteria in Aseptic Operations. DÖDERLEIN.—Instead of estimating by the results of the operations, the degree of asepsis secured, this Tübingen professor made comprehensive tests in "aseptic operations" lasting over half an hour, sowing scrapings of the wound, etc., at intervals. Cultures constantly developed, even when extreme efforts were used to realize asepsis, such as a damp sheet spread above the operating table, to collect the germs in the air, etc. and the operator in hood, mask and gloves on his hands like a negro's from the effects of permanganate. His conclusions are that the bacteria in the wounds are derived from the hands of the operator, from the underlying skin, as the disinfected epidermis scales off in the course of the operation proved among other facts by the almost complete absence of bacteria in tricot gloves after a long operation, if thin rubber gloves are worn under them. But instead of advocating the wearing of impermeable gloves during aseptic operations, he asserts that absolute freedom from bacteria is an unattainable ideal, and we might as well abandon our attempts to realize it beyond what is already accomplished in the ordinary well-managed aseptic operating-room. On the other hand, we must bend every effort to keep our hands free from pathogenic germs, wearing impermeable gloves in operating and examining septic or infected cases, and supplementing this precaution by assisting the organism to resist the ordinary germs that are constantly present, by every measure known to date, or that is yet to be discovered. In this direction lies the field for future achievements.

Wiener Klinische Rundschau, June 25.

Pseudopulmonary and Pseudopleural Sounds. O. ROSENBACH.—The writer called attention to these sounds some years ago, but few physicians bear them in mind, and thus applicants who are good subjects are sometimes rejected by examiners for life insurance companies, on the suspicion of lung disease, when in reality the sounds are due to the muscular contractions in the thorax in perfectly healthy persons, as he has had occasion to establish in a number of cases. The sounds deceptively simulate dry râles, and are most perceptible in vigorous, rather lean young persons. They can be artificially produced by electrically exciting and auscultating a muscle as it contracts. The sound only occurs during inspiration and continues when the breath is held at the maximum of inspiration. It is unaffected by coughing, expectoration, change of position, etc., although if there are transient catarrhal symptoms it cannot be positively differentiated until they are healed, when the sound will be found still persisting.

Gaceta Medica (Mexico), July 1.

Treatment of Prostatitis. R. LAVISTA.—A patient with severe prostatitis and retention, with symptoms of atheromatic arteriosclerosis, had a profuse hemorrhage after withdrawal of 5000 grams of urine, quite filling the distended bladder, which reached to the umbilicus. After a suprapubic incision the bladder was rinsed with hot water and saturated solution of antipyrin. The prostate was very much hypertrophied with a "bar" or transverse excresence, which was removed and several furrows made in the lateral lobes with a galvanic loop. A large catheter was used to hold down and open the neck of the bladder, prostate and pubis, affording a sure guide for the cauterization of the parts desired without injury to others. The results were most satisfactory in every respect. The hemorrhage was arrested, the vesical cavity contracted and the permeability of the urethra completely restored from the first.

Societies.

Fresno County Medical Society.—This society met July 6, at Fresno, and elected the following officers: President, George A. Hare; secretary, W. T. Barr.

Wabasha County Medical Society.—At the annual meeting of this society, held in Plainview, Minn., July 13, the following officers were elected: President, E. H. Bayley, Lake City; vice-president, J. A. Slocumb, Plainview; secretary and treasurer, W. F. Wilson, Lake City. The next meeting will be at Lake City, on the second Thursday in July, 1900.

Tri-County Medical Society.—This society, comprising physicians from Ford, Iroquois and Vermilion counties, met at Danville, Ill., July 11. Officers were elected as follows: President, M. S. Brown, Danville; vice-president, B. S. Euans, Watseka; secretary and treasurer, Leroy Jones, Hooperston. The times of meeting were changed from the second Tuesday in January and July to the first Tuesday in December and June.

Medical Congress of Latin America.—The government of Chili has invited all the governments, medical faculties and societies of Central and Southern America, including Mexico, to a grand medical congress at Santiago, Chili, toward the close of 1900. All the governments and most of the universities have already accepted. An international hygienic exposition is to be one of the features of the congress, and the German medical papers are urging manufacturers of sanitary and hygienic appliances for public and private use to send exhibits, as this is practically a virgin field in Latin America.

State Board of Health of Pennsylvania.—The thirty-third annual meeting of the board was held at Glenolden, Pa., July 12. Dr. Benjamin Lee, the secretary, in his annual address called attention to the resolution urging the establishment of a leper colony, which had been forwarded to the United States Marine Hospital service, at Washington. He also reported that the additional $3000 needed to meet the expenses of the recent outbreak of smallpox, which had been forwarded to the Emergency Board, was promptly granted. Pollution of the Schuylkill was next considered and it was reported that new powers had been granted the Board of Health in the case of cities of the first class, and steps would therefore be taken to abate the practice of pollution of streams, by more stringent laws. The new ruling forbids the pollution of streams by deposits of excrement, whether from houses or boats. Ten new boards of health have been established in different parts of the state since the last meeting. In the opinion of Dr. Lee, $5000 will be needed in controlling the epidemic of smallpox in the southwestern counties of the state.

Kansas City District Medical Society.—This society held its summer meeting July 6. Dr. M. B. Ward read a paper on "Myotomy for Uterine Fibroids," and Dr. Hal Foster one on the "Treatment of Broken and Deformed Nasal Septa." He insisted that the same care and attention given a broken limb, should be given a broken nose. Asch splints should be inserted to hold the broken parts in place until union had occurred. The drill and trephine can be used in slight deviations. In a great many cases a Bosworth saw acts excellently. The spoke shave is useful only in mild deviations. He described the Watson, Asch, Gleason, Ingals, Roe and Bosworth operations for correction of deviated septum. For severe cases he considered the Asch operation the one offering the best and most lasting results to the patient. Great care should be taken that no blood be allowed to enter the larynx while the patient is under the general anesthetic. The patient's head should be allowed to hang over the edge of the table in order that the blood may escape through the nostrils. He advocates using a solution of suprarenal capsule in the nose before doing the operation, as it prevents the blood from obstructing the field of operation.

The next meeting, October, 1899, will be the twenty-fifth anniversary of the society.

New Jersey State Medical Society.

Meeting Held at Allenhurst, N. J., June 27, 1899.

TRAUMATIC NEURASTHENIA.

DR. J. D. MCGILL of Jersey City in this paper classifies the neuroses as organic and functional; then the traumatic as depending on a neurotic diathesis, hereditary or acquired as predisposing causes, a shock and a wound as the exciting cause. He considered shock psychic and physical, as the chief cause in traumatic neuroses and discussed the pathology, the disease being due to a starved nucleus from vitiation of cell protoplasm.

PROGRESS, PROBLEMS AND PROSPECTS IN MEDICINE.

DR. JOHN BRUYARE of Trenton presented a paper on this subject, to appear in the JOURNAL.

EMBRYOTOMY AND TWO CESARIAN SECTIONS IN SAME PATIENT.

DR. J. C. MCCOY of Paterson read this paper. The patient, Mrs. F., a mulatto, aged 19, first pregnancy, had been in labor three days when he was called to her; now fatigued with vomiting for twelve hours. During pain the uterus would roll forward and assume an almost anteroposterior direction; small vaginal outlet, broad pubic arch, giving the impression of a pelvic canal contracted in all its diameters. The pains exerted no effect on the delivery. She was transferred to a hospital and at 1 a.m. an effort was made to apply the Tarnier axis-traction forceps under complete ether narcosis. After several futile efforts, version being impossible, the child still viable, the head was perforated, crushed with the cephalotribe and the body delivered piecemeal, operation occupying one and a half hours. Owing to the need of backward traction, the perineum was torn two and a half inches into the rectum. After removal of the placenta, the cavity of the uterus was thoroughly curetted with a dull irrigating curette followed by a thorough flushing with sterilized water. Bleeding having subsided, the upper portion of the vagina and rectum was packed with iodoform gauze, and the tissues cleansed with sterilized water. The tear in the rectovaginal septum was closed with interrupted sutures of fine silk. The separated ends of the sphincter ani muscle were united by deep silkworm gut suture and finally the perineum repaired. The recto-vaginal tear healed perfectly and sutures were removed on the tenth day. From this time all went well.

On June 15, 1895, he was again called to this patient, at full term and labor just started. Examination showed the head wedged in about the same position as before, and no progress. With the former experience, and the desire of the parents for a living child, Cesarian section was advised. She was removed to the hospital. Measurements gave distance between the anterior superior spines of the ilia 7½ inches, between crest of ilia 8¾ inches, sacropubic 5 inches, width of pubic arch at articulation 2¼ inches. Pains not being frequent she was given half an ounce of magnesia sulphate, followed by a high enema of water; next morning another high enema causing free evacuation of the bowels. She was then prepared in the usual manner for laparotomy.

At 10 a.m., June 16, median incision was made extending above the umbilicus, the uterus lifted out of the abdominal wound, wrapped in hot wet towels and firmly held by an assistant. Two sutures of silkworm gut were passed through the entire thickness of the abdominal wall above the uterus, which when tied closed the wound, preventing any undue exposure of the peritoneal cavity. An elastic ligature was passed about the cervical portion of the uterus, which was then opened in the median line anteriorly, incision extending close to the fundus; there was little bleeding from the incision. The membranes presented were ruptured, and the amniotic fluid escaped. The placenta was situated on the anterior surface of the uterus at the juncture of the middle third and directly under the line of incision; it was rapidly separated from the uterus, the feet of the child grasped and it quickly delivered, the assistant gently kneading the uterus during this time. The uterus was then washed out with hot sterilized water, the cavity swabbed with 1-40 carbolic solution, and the organ well contracted. In removing the child, weight 8½ pounds, the uterine wall was torn slightly at its upper portion at right angles to the incision. The uterine wound was closed by interrupted sutures of silk at intervals of one-quarter of an inch; these entering at the edge of the peritoneal surface of the uterus and passing down to the endometrium, the peritoneal surface being approximated with sutures of catgut and the abdominal wall closed with sutures through and through of silkworm gut; time one hour and ten minutes.

The child was put to breast at the end of twelve hours, and sutures in the abdominal wall removed on the eighth day, the patient leaving the hospital on the twenty-first day. At no time was temperature over 99 degrees. Six months later she had a slight discharge from the lower portion of the abdominal wound. It resembled that found in endometritis and on further examination I found that a probe could be readily passed through the abdominal fistula into the cavity of the uterus. Seven months later, after weaning the child, she had a bloody discharge from the sinus coincident with the menstrual flow. She declined any operation to close this.

November 12, 1898, at full term of pregnancy she was removed to the hospital for a second operation. The uterus was found adherent at the point of sinus in the abdominal wound, over a space of 2½ inches. On either side of the old scar were bands of adhesions extending the entire length of the organ and across its cervical portion, these adhesions surrounding the field of operation, save at the fundus. Uniting, as they did, the anterior surface of the uterus to the parietal perineum, they made the operative field practically extraperitoneal. the cicatricial tissue about the sinus in the uterus extended over an area 1½ inches in diameter. Under these conditions the uterus was not drawn out through the abdominal wound as before, nor was an elastic ligature placed about the cervical portion of the organ. The incision in the uterus was made along the line of the old wound. No trace of the sutures was observed, and there was slightly more bleeding from the uterine incision than before. The membranes were ruptured, placenta found attached as before, delivery accomplished, child weighing 7¾ pounds. Owing to the adhesions mentioned, supplemented by gauze packing above, thus far operation was practically extraperitoneal. At the point of fistulous tract in the uterine wall the cicatricial tissue was excised, and the opening in the uterus closed. In this instance the sutures were entered on the peritoneal surface of the wound in the uterus, and closer. Both tubes and ovaries were then removed; a wedge-shaped piece of uterus was included in the uterine end of each tube. The bases of these triangular spaces were then closed in the usual way. The cicatrical tissue in the abdominal wall was excised and the wound closed. Time from abdominal incision to delivery of child was nine minutes, operation complete in one hour, recovery uneventful, mother and child going home at end of fourth week.

In the house to which she went a case of diphtheria developed; both contracted this disease, the child dying.

The question might be raised as to relative value of symphyseotomy and Cesarian section, or whether embryotomy might have been again performed. The external measurements of the pelvis were no less than one would expect to find in a woman of the stature and build of this patient, yet the conjugate vera was, owing to the extremely wide pubic arch and the unusually marked sacral prominence, contracted; this, coupled with the difficulty in removing the child at first labor, and the demand for a living child, seemed to justify the course pursued. While the external measurements of the pelvis may prove of great value to us in determining beforehand the probabilities

of a severe or an easy labor, we must take into consideration the size of the child, which can be but approximately determined, consequently any rules laid down as indications for the operation can be but relative. Given a case just subjected to embryotomy, with the extreme difficulty in removing the macerated child, he is inclined to believe that the Sanger-Cesarian in a woman before her powers have been lowered, is under favorable surgical conditions, fraught with well-nigh if not quite as little danger to the mother as the so-called more conservative procedure of embryotomy. In this case the woman was about and attending to her customary duties nearly as soon as after a normal labor. Indeed, she was left in better condition than after the embryotomy.

The Porro was not employed because the uterus was in a healthy state. The removal of the uterus must of necessity add to the dangers of a Cesarian and unless there be distinct and definite reasons, such as morbid growths, etc., it would seem that we can best conserve the welfare by non-removal. In this case I regret that in place of the double salpingo-oöphorectomy, I did not follow the course of Crimail of Pontoise, in which, during the second Cesarian on the same patient, in order to provide against subsequent pregnancies, he passed a double ligature about the uterine end of each tube and divided the tube between the ligatures. Such a course, by allowing the ovaries to remain, would tend to relieve the patient of the various phenomena incident to the artificially produced menopause.

Too much stress can not be laid on the careful and methodic closure of the uterus. Time is an important factor, yet in my first Cesarian the fistulous tract might have been due to the fact that the sutures were not placed quite close enough together. Subsequently, the sutures were placed at shorter intervals and no superficial sutures were employed.

BLEPHARITIS DUE TO DEMODEX FOLLICULAROSUM.

DR. T. C. ARD of New York, in a report on ophthalmology and otology presented this topic. This acarus is found most frequently in the sebaceous glands of the face, without producing disease, yet it no doubt causes blepharitis by its presence in the follicles of the eyelids. The cilia fall out and itching is a prominent symptom; in suspected cases microscopic examination should be made and if the demodex is found, a 35 per cent. ointment of balsam Peru will rapidly effect a cure.

PROPAGATION OF BLENORRHEA NEONATORUM.

On this phase of his report, the Doctor cited DeWecker, who explains that the direct lodgment of gonococci within the conjunctival sac is next to impossible, so tightly closed are the lids of the child during labor. The outside is soiled and as soon as the lids are opened the infection would not be difficult. The length of the incubation period proves his assertion. It is three or four days and never less than two; in direct transmission, it would be twenty-four hours.

He spoke also of Elschnig's explanation of this association as hepatic disease leading to cholemia and jaundice impairs the secreting capacity of the conjunctiva. This leads to increase in the xerosis bacilli in the conjunctiva and the latter germs bring about desiccation, cornification and fatty degeneration of the epithelia. Thus the avascular cornea goes to necrosis and ulceration. If pathogenic bacteria are present they may develop in the wound with possible general infection; if absent, the affection is benign in character.

ANIMAL EXTRACTS IN OPHTHALMOLOGY.

DR. ARD pointed out that Lagrange has been using a solution of vitreous humor of an ox in sterilized glycerin, and after maceration a filtrate is prepared for use by the mouth or subcutaneously. The remedy was used in cases of escape of vitreous in cataract operations and detachment of the retina. Improvement followed but might have been spontaneous.

INSTILLATIONS OF ANTIDIPHTHERITIC SERUM INTO EYE IN DIPHTHERITIC CONJUNCTIVITIS.

Mongour observed that during an epidemic of this trouble antitoxin when given subcutaneously was successful as regards the general results, but that several children lost their sight. The next series of cases, seven, was treated by direct instillation of the serum into the sac in conjunction with the other injections. He was successful in every way.

HYDROCHLORIC ACID APPLICATION TO BONY WALLS OF TYMPANIC CAVITY AND MEATUS.

DR. ARD said that Bull of Christiania proposed this remedy some years ago. He concludes, after years of experience, that the treatment is not indicated if the ossicles are diseased. When dead bone is visible he applies cotton soaked in the acid —4 per cent.—and leaves it in contact. In a cavity he introduces the cotton into it, removes it next day; applications a week apart. The acid gradually decalcifies the affected bone and acts like curettage. It is a strong antiseptic and cures from one-third to one-half of all treated.

CLOSING PERFORATED EAR DRUMS.

Concerning Okuneff's method, Peltesohn has used it with great satisfaction for the past year. It has been ignored in standard works on otology, but the results of the past few years have been collected and Peltesohn regards it as a most brilliant addition to our resources. The method is simplicity itself. All perforations tend to close, but the increased proliferations of epithelium at the margins of the perforation prevent the fulfilment of this tendency. By cauterizing these epithelial accumulations with trichloracetic acid the granulations once more reassert themselves and close the aperture. Within a short time a number of eminent otologists have adopted this method with great success.

OPERATION FOR SINUS THROMBOSIS.

In a contribution to the clinical stages and to the technic of the operation, Whiting divides the history into: 1. The presence of a thrombus, parietal or complete, not having undergone disintegration and accompanied by slight or moderate pyrexia, rigors being usually insignificant or absent. Diagnosis is made in this stage, consequent on operation for mastoiditis, and the only safe-guard against encountering the increased gravity of the second stage is to operate immediately on the recognition of the first stage. 2. The presence of a parietal thrombus, or a complete one which has undergone disintegration and resulting systemic absorption characterized by frequent rigors and pronounced septicemic fluctuations. 3. The presence of a thrombus, parietal or complete, which has undergone disintegration with systemic absorption accompanied by rigors, rapid and great fluctuations of temperature, central and peripheral embolic metastases terminating usually in septic pneumonia or enteritis. He gives a complete and exhaustive description of the symptoms of each stage and a clear exposition of the operative procedure. In concluding the article he says that it is not too sanguine to believe that as our knowledge of symptomatology and technic improves there should be no fatalities in the first stage of sinus thrombosis; the second stage should furnish only an occasional fatal result and the third stage should, in the absence of gangrene of the lungs and purulent meningitis, be regarded as a still hopeful surgical procedure.

Officers were chosen as noted in the JOURNAL, July 8, p. 100.

Medical Society of the State of Colorado.

Twenty-Ninth Annual Meeting Held in Denver, June 20-22, 1899.

KIDNEY DISEASES.

DR. LEONARD FREEMAN reported several cases.

CASE 1.—A woman 23 years of age. She suffered from pain and tenderness in the region of the left kidney, the pain follow-

ing the ureter to the bladder and often running down the thigh. Physical examination revealed nothing. Urine contained crystals of oxalate of calcium, few hyaline casts and red blood-corpuscles. The increase of pain, tenderness and blood in the urine in motion, jolting the body or percussion of the lumbar region, with decrease of the symptoms during rest in bed, pointed to calculus as a probable cause. At the operation, in which the kidney was freely incised along its convex border and reunited by catgut sutures, nothing was found except an undue movability of the organ. Nephrorraphy was done, and union by first intention, without drainage, was obtained.

The author concludes from this case that blood in the urine may be due to movable kidney.

CASE 2.—This case presented symptoms similar to those of the above. The urine was acid, contained a few red blood-corpuscles, some hyaline casts, and of high specific gravity. A movable kidney was suspected, but treatment directed to the diminution of acidity and specific gravity of the urine cleared up the symptoms in a few days.

CASE 3.—A man, 30 years old, had noticed all his life a tumor on the region of the left inguinal canal. This was supposed to be an undescended testicle. At irregular intervals inflammation and swelling took place. At the operation what was supposed to be a testicle was found to be an undeveloped kidney lying in the inguinal canal, and a hernial sac lay by its side. The kidney was filled with a black fluid and its ureter was a mere fibrous cord resembling a vas deferens. A radical operation for hernia, castration, and nephrectomy was simultaneously performed, an uneventful recovery resulting.

CASE 4.—A boy, 13 years old, fell fifteen feet from a tree, striking his left side. He suffered great pain and passed blood in the urine. Temperature was 103, pulse rapid. On the third day an exploratory incision was made and the kidney was found torn almost in two, and surrounded with a large quantity of fluid blood and urine. Recovery after drainage was complete.

CASE 5.—A man 35 years old, was shot in the left side. Extravasation of blood and urine followed. Incision was made down to the kidney for drainage. At the end of several weeks secondary hemorrhage set in. It became so profuse as to almost exsanguinate the patient. As a desperate resort a nephrectomy was rapidly done without anesthesia. The patient rallied under the use of saline solution and ultimately recovered.

CASE 6.—A man about 70 years old suffered from profuse renal hemorrage for which no cause could be detected. He had been addicted to the eating of crude opium, which had been suddenly taken away from him before the hemorrage began. Death from exsanguination followed. The autopsy revealed no abnormality in the kidney.

CASE 7.—A man 35 years old, suffered for several years with recurring abscesses of the prostate gland, following a perineal operation for stone. There was great irritability of the bladder; moderate fever; no tumor could be felt. It was decided to cut down upon the kidney. Five abscesses were encountered containing several pints of pus. The kidney, which was incised and drained, was found pushed over to the median side. The bladder symptoms at once disappeared and the patient made an excellent recovery. The author called attention to the fact which is not widely appreciated : that irritability of the bladder may be due to affections of the kidneys.

CASE 8.—A woman of 18 years, since 4 years of age had complained of pain and tenderness in the region of the right kidney. There was no history of renal colic or of passage of gravel. Jarring the body or pounding on the lumbar region produced sharp pain. The urine contained a considerable quantity of cystine crystals. While the patient was under observation she fell down a flight of stairs, striking heavily on the affected side. The pain at once absolutely disappeared; tenderness also rapidly subsided. The abrupt cessation of the symptom would seem to point to the existence of a stone which suddenly under the influence of the trauma, shifted its position and ceased to be a source of irritation. An interesting fact was noted, i. e., the patient during the last five months could not wear a silver ring as it turned black almost as rapidly as it was polished. The explanation of the phenomenon undoubtedly is that those affected with cystinuria exude a certain amount of sulphur through the skin.

RESECTION OF LARGE INTESTINE.

DR. E. J. A. ROGERS reported the following:

CASE 1.—Mrs. J. M. A., aged 49, mother of thirteen children, and with previous health good, December 17, 1897, was taken acutely with pain in the bowels and tenesmus, but passed only gas and blood. After taking a cathartic she began vomiting and became distended. She came to the hospital on the 20th. A tumor could be distinguished on the left side between the umbilicus and the anterior superior spine of the ileum. The abdomen was opened by a central incision, and the peritoneum was found filled with a dark foul-smelling fluid.

The tumor proved to be a much-enlarged sigmoid and descending colon; it felt quite solid and appeared gangrenous. A longitudinal incision proved the mass to be made up of the thickened walls of the bowel, which almost obliterated the lumen of the canal. The mesenteric glands were enlarged. The upper portion of the rectum appeared fairly healthy, and a double ligature was placed around it as low down in the pelvis as it was possible to reach. The upper portion of the bowel near the gangrenous area was also doubly ligated. The mesentery was then tied off as short as possible, and the intervening bowel excised. So much of the descending colon was removed that it was hard to find a place to make an artificial anus.

The operator forced his finger from within outward up close to the margin of the ribs and as far posterior as seemed practicable, and cutting through the skin over this point, separated the muscle fibers, and forced the peritoneum into the ring thus made. He then opened the protruding sac of the peritoneum and drew the divided end of the colon into it. He stitched the ends of the ligature into the skin toward the lumbar region, some distance from the opening, thus holding the bowel in place and leaving it unopened. The central incision was then closed. The second day he cut into the bowel to allow the gas to escape. She was fed by artificial enemata. The protruding bowel was allowed to slowly necrose away. Gradually the bowel assumed the regular functions. She was discharged Feb. 2, 1898. Examination of the tumor showed the disease to have been croupous colitis.

CASE 2.—E. C., a stonecutter, aged 43, in 1895 began to suffer from pain in the abdomen, usually in the evening, which condition lasted for three months. In November, 1897, while having a severe cold and coughing much, the pain first localized itself in the right side of the abdomen, and he began having black tarry stools several times each day. His appetite failed, and he lost thirty-five pounds in weight. On Aug. 10, 1898, he had a severe chill which prostrated him. A movable tumor then occupied the lower right abdomen. The abdomen was opened on the 16th, along the median line, and the tumor was found to be a large carcinoma involving the cecum, part of the ascending colon, the omentum and the transverse colon. The glands of mesocolon were enlarged.

The omentum was ligated off, and the transverse colon beyond the tumor was clamped, also the ileum above the valve, and the bowel divided at these two places. The layers of the mesocolon were clamped as near the vena cava as possible, and the entire mass was cut away and removed. The open end of what remains of the transverse colon was closed, and approximated to the end of the ileum and made an end-to-side anastomosis with a Murphy button. The parts removed included about six inches of the ileum, the cecum, the ascending colon, about two-thirds of the transverse colon and most of the omentum.

The recovery was very satisfactory. The patient left the hospital on September 22, the button not passing until that date, thirty-six days after the operation. On leaving the hospital

he weighed 140 pounds, and now weighs 195, and has for the past month been at work at his trade.

FUNCTIONAL AFFECTIONS OF JOINTS.

DR. GEORGE B. PACKARD said in part: While this pseudoarthritis may be induced by an exhausted nervous system, and occurs frequently in persons of an emotional temperament, usually in women, yet it is sometimes seen in persons of an opposite temperament, and from various causes. Therefore, he thinks it should not be considered hysterical in all cases, but rather an indication of some weakness about the joint or nervous system. They simulate organic diseases so closely that it is sometimes with the greatest difficulty that a correct diagnosis can be made. The importance of distinguishing these functional affections from the inflammatory condition should be particularly emphasized because the treatment is diametrically opposite—in one case rest, in the other activity.

As etiologic factors he regards slight traumatism and muscular weakness as the most frequent. These cases not always being recognized as such, afford many opportunities for "remarkable cures" by charlatans. Presenting, as they do, many if not all the subjective symptoms of organic disease, the recovery from lameness seems almost miraculous to the uninitiated. In treating these cases it is necessary to overcome local pain and disability. When the spine is the seat of the trouble he found it necessary to use a light flexible support until the patient becomes stronger. He uses cold sponging, friction, massage and light gymnastic exercises.

In functional affections of the knee, hip and ankle it is also necessary to, in some cases, temporarily protect the joints until the circulation and muscular support has been improved by massage, electricity and passive motion.

OUTLINE RECORDS OF FLEXION AND EXTENSION AFTER SERIOUS INJURY OF ELBOW-JOINT.

DR. GEORGE W. MIEL recommends, in cases presenting difficulties and concern for restoration of function, a method of accurately ascertaining and indicating the progress of treatment: An outline record of flexion and extension; a tracing taken from time to time, with date of each properly placed. This is effected by outlining the whole arm—hand omitted—against heavy pulp-board interposed between the arm and body. The original tracing should outline the whole arm at its fullest attainable flexion and extension; in subsequent tracings, with the arm proper resting between the original outlines, the forearm alone need be outlined. Such an outline record interests the patient, usually encourages him, and perhaps satisfies him. For the surgeon it is a reliable guide, a satisfaction, and a record of scientific interest.

BONE NECROSIS FOLLOWING TYPHOID FEVER.

DR. FRANK FINNEY reported four cases of bone necrosis following typhoid fever, out of forty cases seen in his private practice. Three of the four cases involved the sixth rib on the left side almost exactly at the same spot. None of the cases recovered without an operation. The general health of the patients did not seem to be greatly impaired by the long-continued suppuration, but the disease did not show any tendency to recovery without operative interference.

(*To be continued.*)

California Academy of Medicine.

June Meeting.

(*Concluded from page 183.*)

SYPHILITIC EPIDIDYMITIS.

DR. DUDLEY TAIT presented a specimen of this condition. The patient, a Chinaman, gave the following history: Age, 25 years; contracted syphilis four and one-half years ago; has had several series of papulae-squamous eruptions in that time; has received no treatment at any time; at present has a few papules on his back and chest; no bone or visceral lesions of any sort are present. Two weeks prior to our examination he for the first time noticed a swelling in the right epididymus, the size of a bean, and sufficiently painful to compel him to ask for assistance. A suspensory was advised by the attending physician, who diagnosed gonorrheal epididymitis Examination six days later, showed in the upper portion of the epididymus, a hard, indolent nodule, with a diffuse swelling diminishing downward toward the tail—globus minor. Foreible palpitation elicited slight pain, but much less than normally. The testicle was apparently normal, as was also the cord. The opposite side was healthy. There was no history and no sign of gonorrhea and no history of traumatism. Syphilitic epididymitis was diagnosed. The patient refused any treatment by mercury, and demanded extirpation of the diseased tissue. This was at once done in accordance with his wishes, the result being a very fine specimen of an unusually rare condition, and entire relief of the trouble.

Microscopic sections were prepared by Dr. Wm. Ophuls, Professor of Pathology at Cooper Medical College; the appearance of the sections is peculiar: A diffuse sclerosis, together with arteritis, both endo- and peri-, may be very clearly seen in any of the sections. (The specimen was exhibited and was indeed a most interesting one. The glandular structures of the testicle seemed to be quite intact.)

A few words as to the status of this lesion may not be out of place, for the reason that its very occurrence has been denied and disputed by some writers, and no mention of it is to be found in the English text-books. For a long time the existence of syphilitic epididymitis was bitterly contested, especially by certain Germans, Sigmund and Kocher in particular. The French were the first to describe the affection. Dron, in 1863, gave a very excellent account of this complication of syphilis; Fournier described the condition and gave it the name of "épidyme secondairé;" Balme, in his inaugural thesis, 1876, also treated of this lesion; other writers of note on syphilitic epididymitis are Mauriac, Ténédat, Cuilleret (Lyons, 1890), Reclus, in "Syphllis of the Testicle," and Founier (1899.)

The characteristic features of the disease, or variety of disease, are: 1. Its location, it being almost always limited to the epididymus, and seldom extending to the testicle. 2. Its early development. Fournier noted it six times during the seventh month; twice in the first ten or eleven months; Balme 8 times in from the second to the fourth month, and 6 times in from the eighth to the fourteenth month; 8 times between the second and the eighth year of the disease. It is generally unilateral and belongs to both the secondary and tertiary periods. On account of the frequency of the syphilitic lesion of the testicle during the secondary period, and of the frequent occurrence of syphilitic epididymus during the tertiary period, Reclus proposed the appellation of "syphilitic eididymitis," instead of "epididyme secondairé" of Fournier.

It is mostly found in grave, secondary, untreated syphilis. The lesion is generally not noticed by the patient in the early stages; it is usually first detected by the physician. This reminds one of Ricord's advice to physicians in charge of syphilitic wards: "Watch the patients' testicles more than the patients themselves." The nodule generally involves the head of the epididymus-globus minor, contrary to tubercular lesions which have a predilection for the tail of the epididymus. The nodule is hard, resistant and indolent, except in certain rare instances where the invasion is quiescent. When the lesions have been left to themselves, without treatment, there may occur a slight hydrocele. The nodular mass increases to the size of a nut, seldom larger, then remains stationary, retaining its hardness. Diffuse infiltration is very rare. Fournier likens the nodule to a bean in a healthy epididymus. Syphilitic epididymitis does not interfere with the spermatic functions In one of Dron's cases with bilateral lesions, spermatozoa were present. The knowledge of these lesions of the epididymus is

of considerable importance, especially in relation to tuberculosis. The evolution of tubercular lesions is more diffuse, the nodules are multiple, the results of palpation are altogether different: the cord, prostate and vesicles are frequently involved, and, as already mentioned, the lesions most frequently involve the tail end of the epididymus. The differentiation from gonorrheal epididymitis in a syphilitic subject may give rise to some doubt, but its invasion is generally more acute, and the lesions more diffuse and painful. The results of mercurial treatment are miraculous in syphilitic epididymitis. The iodid is seldom necessary.

SARCOMA OF TESTICLE.

DR. TAIT also presented another pathologic testicle, with the following statement and history: The patient, a Chinaman, aged 74 years, a merchant, presented himself with a scrotal tumor about the size of an adult's head. It was irregular in outline and in consistence, and extended to the external orifice of the inguinal canal. The skin was normal and nonadherent. The veins were slightly enlarged, but there was no enlargement of the inguinal glands. No lumbar glands were discernible. The attending physician had tapped the mass at the lowest point, anteriorly, thinking it to be a hydrocele. A few drops of cystic fluid slightly sanguinolent, escaped. The tumor was extirpated without difficulty after securing the cord and vessels en masse; the tumor was stripped downwards, and proved to be the very rare sarcoma of the testicle.

Sarcoma is exceedingly rarely met with in this region. Gurlt, twenty-three years in Vienna hospitals, records 16,637 tumors. Of these, 848 were sarcomata, and but 45 of these occurred in the testis; 11,131 were carcinoma, with 64 occurring in the testis. German and English records show but 114. Sarcoma of the testis exhibits some interesting features. The nearest glands are almost always involved, which partly explains the extreme frequency of abdominal involvement through metastasis. Like carcinoma, the disease does not extend to the contiguous tissues. There is generally a history of traumatism or retained testicle. As to the age of most common occurrence, Virchow thought the young and the old most commonly troubled, but Kober's statistics place the period of greatest danger between the years of 20 and 50. Clinically, it is impossible to make a differential diagnosis from carcinoma. It may be mistaken for hematocele or hydrocele, as in the case reported by Dupuytren and Kocher. Exploratory incision, under cocain anesthesia, should always be made. The prognosis is always grave, though the results of operation are frequently very gratifying. Kocher was the first to call attention to the fact that it is quite impossible to determine the prognosis from the microscopic sections, as the evolution of tumors of the testicle is very variable.

DR. J. F. MCCONE.—I removed a sarcoma of the testicle, some five years ago, which was very similar to the one presented by Dr. Tait. It was, however, only about one-half the size, and there was in the sac about a half pint of fluid. Externally, the tumor measured 9 by 12 inches in circumference. The sarcoma itself was 5 inches long by 3 in diameter. The microscopic sections showed a round celled sarcoma, but some doubt has been thrown on the diagnosis, owing to the fact that the mass was removed some five years ago, and the patient is still alive. Thirteen years before the patient had had gonorrhea and orchitis, and eight years before there was some slight injury while wrestling. This was all the history that could be ascertained. The patient had been tapped twice for hydrocele by a homeopathic physician, and at the second tapping he stated that the patient could not live very long, no matter what was done.

DR. D. W. MONTGOMERY.—I do not exactly remember the microscopic picture, but I am sure the tumor was a round celled sarcoma, both microscopically and macroscopically. It is not at all fair to question the diagnosis simply because the patient has not yet died. I recall a similar, and very interesting case, which occurred in a patient of Dr. Chismore's some years ago. The patient was himself a doctor, and received an injury during a runaway accident. No trouble was noticed at the time, but later a lump appeared. Some slight inconvenience was experienced from the time the lump made its appearance. It developed into a sarcoma which was removed by Dr. Chismore. One year later, however, the patient died from abdominal involvement.

DR. MCCONE.—I would like to ask, in reference to the patient I operated on, whether any cases are recorded of recurrence as late as five years after operation?

DR. TAIT.—I know of one case, recorded by Kober, of recurrence after six years.

TREATMENT OF HYDROCELE.

Dr. Tait then introduced this subject as being somewhat akin to the matters just discussed. He said that each man seemed to have some special treatment which he employed in all cases of hydrocele, irrespective of the etiology of the excess fluid. The factor of causation did not seem to be very much considered, so far as he could ascertain, and all the cases were treated alike. In his opinion, it was obviously improper to treat a hydrocele in an old man, where the fluid had been slow in accumulating, and was probably due to some slight lesion of the tunica, as one would treat a similar condition in a young subject, the fluid accumulating more rapidly and indicating a decidedly different condition of causation—tuberculosis, cysts of the epididymus, etc. He strongly advocated the exploratory incision, under cocain anesthesia, to determine the nature of the cause in all such cases, and then the modification of the treatment accordingly. The discussion was participated in by the members present.

SKULL FRACTURE.

DR. F. B. EATON reported a case of unusual fracture of the base of the skull, with certain eye symptoms, in a man about 26 years of age, the history being about as follows: He had been struck on the side of the head by a man's fist, one night, while walking along the street. The police were inclined to think the blow had been delivered by a "jack," and not simply by the fist; but this point is still an open question. The blow was not, however, severe enough to produce unconsciousness, and the man went on to his home. He was simply a trifle dazed. The next morning there was pain in the left side and shoulder, with later pain in the left eye, and headache. Four or five days later he experienced a feeling as if something were behind the eye, trying to push it outward, and a week later internal strabismus was apparent. He could hear, constantly, a quite severe noise, seemingly in the head. The strabismus passed away, but later returned. Some four months after the injury had been received, the left eye protruded quite noticeably outward and downward; there was perceptible pulsation on touch and a loud bruit could be heard with the stethoscope. The conjunctiva was congested. The opthalmoscope showed the disc to be somewhat paler than the other, with vessels distended. The vision was but little lowered. The vision of the right eye was 20/15 and the left eye 20/20.

The diagnosis was fracture of the base of the skull, passing through the cavernous sinus, with a rupture of the internal carotid artery into the cavernous sinus. Dr. Eaton did not have a chance to test the facial sensitiveness, but believes there was, or would shortly have been, some facial anesthesia, and that the only thing was to ligate the common artery on the left side; the diagnosis and opinion were confirmed in consultation. Later, at St. Luke's Hospital, the operation was done with entire relief of the troublesome symptoms.

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SATURDAY, JULY 22, 1899.

DEGENERACY OR OCCUPATION STRESS.

Recent analyses of prominent literati and scientists exhibit a tendency to confuse the neuroses arising from acquired neurasthenia with the neuroses of a similar type produced by degeneracy. The discussions of Zola's mental and physical constitution by Lombroso, Nordau and Arthur Macdonald betray traces of this confusion between congenital and acquired nervous states. The imperative ideas or obsessions are common to both, and it is on these that most stress has been laid as evidence of degeneracy. The occurrence of obsessions is largely due to the disturbance of the ego: that co-ordination of clear states of consciousness, of obscure states of consciousness and of physiologic states which, though unaccompanied by consciousness, are not less but even more effective than the conscious states. The automatic mental inhibitions last mentioned exercise an enormous influence in removing to the unconscious mental background ideas foreign to the general training of the individual or to his sense of major or minor morality. Many of these ideas are, however, mentally registered, unconsciously to the individual, to be reawakened in states of nerve tire produced by physical exhaustion or disease. In this way is produced the so-called subliminal consciousness of the psychologist, which is a lower and not a higher phase of consciousness. Many of the linguistic and other marvels narrated of this subliminal consciousness fall under the category of automatic remembrance, like the case narrated by Coleridge: A 24-year-old servant was seized by a nervous fever with delirium, during which she incessantly spoke Latin, Greek and Hebrew with a very distinct enunciation. The girl, before her illness, had been a simple, unlearned, harmless creature. The attendant priest referred her case to "possession of a very learned devil."

This explanation did not suit the attending physician, who found that she had been for several years after the age of nine an inmate of the family of a Protestant clergyman, whose constant nightly habit was to read passages corresponding to the girl's ravings, from his favorite books, walking up and down a narrow passage near the girl's kitchen.

Not only during states of delirium, but also during states of adynamia which precede delirium, do such ideas rise into consciousness and trouble the possessor as being foreign to his own mentality. In ordinary life much is unconsciously assimilated by the mind, which remains without association with the daily life of the assimilator. This is shown in the use of coarsely obscene terms by refined modest women during the emotional disorders produced either by pregnancy or menstrual disturbance. The occurrence of the various 'phobias and other obsessions, with their resulting imperative acts, are an expression of this condition. Indeed, the mental processes, of whose operation as well as their results the mind is conscious, are really an expression of the same defect. The conscious mental process betrays, as Herzen[1] has shown, an imperfection of the cerebral organization, for it indicates the presence of a new unusual activity which deranges the equilibrium, the innate or previously acquired automatism, and which does not find a well formed mechanism ready to discharge it. The conscious mental process is the transitory phase of an inferior to a superior cerebral organization. It expresses novelty, incertitude, hesitation, groping, astonishment, imperfect association and incomplete organization, a want of promptitude and exactness in transmission, a loss of tenure in the phenomena of reaction. It indicates that the nervous paths are not sufficiently cleared or distinctly enough traced to permit, without destruction in the final effect, reflex movements or reflex ideational sensations.

A sudden shock, therefore, whether mental or physical, whether occuring in a degenerate or in neurasthenia which has been acquired, may lead to imperative conceptions. As these are accompanied by cerebral circulatory disturbances and by states of anxiety and uncertainty, there is likely to be irregular cardiac action and with it irregular action, noticeably of the liver, kidneys and gastro-intestinal tract. It is a matter of common observation that the kidneys react to this condition. The frequent passage of pale urine in anxious states is a common observation. These conditions, however, must be referred to a physical cause in the shape of vibrations of the nerves of sensation and to the physical reactions produced by these vibrations. Through these circulatory psychic and nervous interactions, a vicious circle is set up and the ordinary gastro-intestinal, hepatic, renal and genital phenomena of neurasthenia of temporary dura-

[1] Journal of Mental Sci., 1884 and 1885.

tion occur. The appearance, therefore, of obsessions and of other neuropathic phenomena may be purely a product of causes arising in an individual from overwork, mental or other shock, and in no way indicate degeneracy. This last view that such phenomena must be the product of degeneracy, vitiates many valuable researches on the subject. Indeed, the whole Lombroso school is permeated by errors of this kind. These errors are the more striking since a century ago Tissot[2] laid great stress on the factor which produced in literati what have been excellently termed occupation disorders. Many of the nervous phenomena occurring in men of letters were referred, and with reason, to worry and uncertainty produced by circumstances connected with finance or their family life, and entirely disassociated from either their genius or from their heredity. The secondary influences of this acquired neuropathy, however, may produce, as Dr. E. S. Talbot[3] says, a neurasthenia. Practically the neurasthenic in regard to his organs has taken on a degenerative function, albeit not degenerating in structure, since the restlessness of the organ is a return to the undue expenditure of force as it is unchecked by the central nervous system. Through the influence of various exhaustion agencies the spinal cord and the brain lose the gains of evolution and the neurasthenic is no longer adjusted to environment. Since the reproductive organs particularly suffer, children born after the acquirement of nervous exhaustion more or less checked in development, as the influence of atavism is healthy or not, repeat degenerations in the structure of their organs, which in the parent were represented by neurasthenic disorders in function. As the ovaries of the neurasthenic woman generally exhibit prominently the effects of the nervous exhaustion, the offspring of these do not retain enough vigor to pass through the normal process of development. For this reason genius very frequently leaves no posterity. The influence of the acquired "occupation disease" comes into play. Burns' genius led to dinner invitations, whence alcoholism. His sexual excess arose from the fact that hysterically sentimental females are attracted by the glare of genius and notoriety, like birds by a lighthouse lantern. From this springs sexual excess and abnormal marriages. The tendency to regard genius as irresponsible, based on the morbidity theory, tends to increase these factors of "occupation disease." In dealing, therefore, with the question of degeneracy in any person, care should be taken to demarcate it and its stigmata from acquired neurasthenia and its stigmata. The error has been made of attempting to separate mechanical genius from that of literati in respect to degeneracy. Dr. H. Gradle, at the Chicago Evolution Club, in 1894, asserted what was subsequently re-echoed by Dr. James Wier[4] that (a fact not noticed by Lombroso or any other writer) "mechanical geniuses or those who for the most part deal with material facts do not as a rule show any signs of degeneration. Darwin, Galileo, Edison, Watts, Rumsey, Howe and Morse prove the truth of this assertion. It is only the genius of estheticism, the genius of emotion, that is generally accompanied by unmistakable signs of degeneration." This error is an a priori one not based on a study of the authors quoted, or the lives of the geniuses cited. Lombroso[5] points out that Darwin, among other stigmata of degeneracy, had a cretin-like physiognomy; that he stammered and that also in other respects he was a neuropath. Nisbet points out[6] that the genealogy of Charles Darwin illustrates many of the neuropathic aspects of genius. He also shows that Galileo was a victim of neuropathy and at times suffered from melancholia, and cites stigmata in the family of Watts. Enough has been cited to show that the mechanical genius and man of science suffers as well as the esthetic class. This error is constantly made in discussing the nature of genius. Neither mechanical ability nor scientific acumen is an impenetrable cuirass against hereditary defect or occupation stress. Although science is less likely to lead to defect than the emotional state of the poet, still the great element of defect in poet and scientist alike has been financial anxiety or worry over success. Where these are removed, poets and scientists enjoy comparatively long life and good health when these are not interfered with by hereditary defect or acquired disease. The error involved in this confusion has a serious clinical aspect. From the notion that obsessions or imperative ideas are products of degeneracy alone, arises too often the ominous prognosis given to neurasthenics, which is fatal to their recovery.

[2] Maladies des hommes de lettres, 1798.
[3] Degeneracy, its Causes and Effects.
[4] Medical Record, June 12, 1894.
[5] Man of Genius. [6] Insanity of Genius.

FACTS AND THEORIES RELATING TO AUTOINTOXICATION.

In an address delivered before the Philadelphia Pathological Society,[1] Chittenden states that as long as the normal rhythm of nutrition is maintained and the organs of secretion functionate normally, there is little occasion for noting the character of waste products of changes in the tissues. In disease conditions, however, the chemical nature and the physiologic action of these so-called waste products, more or less common to all active cells, demand attention.

It needs but little experience with the thyroid and suprarenal glands, for example, to learn that diminutive organs possess physiologic power out of all proportion to their size. The little groups of cells which constitute these glands manufacture substances which exercise a tremendous influence, directly or indirectly, on general metabolism. These substances may not perhaps be directly toxic, their specific action being perhaps rather in the line of prevention of formation of toxic substances elsewhere in the body. The metabolic processes are so intimately connected that disturbance of function in a small group of cells may indirectly modify processes going on in remote parts of the body. "The severing of a

[1] Proceedings Path. Soc. of Phila., June 1, 1899.

single strand in the skein may result in an entanglement fatal to life itself."

Normal products of katabolism may be distinctly toxic. Normally the body is protected against the toxic action by the rapid removal of these products, or through their conversion into harmless substances. Interference with either of these two processes may be dangerous to the organism. Toxic substances once formed may by their influence on metabolic processes increase the deviation from the normal. This notion of autointoxication does not exclude another form of toxemia, namely that resulting from absorption of products formed by intestinal bacteria.

Chittenden would therefore recognize the possibility of autointoxication resulting either because of the formation of normal products of tissue katabolism in undue amount, or on account of lack of speedy elimination or transformation. He then gives the evidence at hand to show that normal products of metabolism may be toxic; in muscle katabolism, as well as in katabolism in many glandular organs, the alloxuric or nuclein bases form part of the product. Among these substances is adenin, which has a marked toxic influence on dogs, in which it produces vomiting, refusal to take food, and after a few days death. Post-mortem shows intense gastro-enteritis, no matter whether the adenin is introduced subcutaneously or by way of the mouth. Especially noteworthy is the action of this substance on the kidney. Albuminuria, with leucocytes, granular and hyaline casts, results. Peculiar spheroliths, of more or less crystalline structure, are deposited in the kidney tubules; at the same time an abundant interstitial cell accumulation takes place.

Minkofski, to whose experiments we are principally indebted for these observations, finds that these spheroliths are composed mainly of uric acid. This shows that after the injection of adenin the excretion of uric acid from the urine is greatly diminished. At the same time there occurs a deposition of uric acid throughout the tissues of the kidney, accompanied by inflammatory changes in this organ. The exact source of the uric acid in this instance has not been established.

Hypoxanthin, a substance of similar origin, on the other hand, does not cause any disturbances in the body and is decomposed into uric acid and allantoin. Xanthin cannot resist changes within the body, but becomes more resistant when a methyl group is added to the xanthin molecule, at the same time as the toxicity increases. Of the resulting compounds, such as heteroxanthins, theobromin and caffein, in frogs heteroxanthin causes muscular rigor and paralysis of respiration.

Urea has long been considered as formed in the liver out of ammonium carbamate. When dogs from which the liver has been removed are fed with meats, symptoms of uremia develop, and the ammonium salt is found greatly increased in amount. The ammonium carbamate is formed in all the tissues and organs of the body, and its toxic action is neutralized in the liver when it is converted into urea. When this function of the liver is interfered with, ammonium carbamate accumulates and causes autointoxication.

In certain conditions acetone is a common product of metabolism. It increases as fat is decomposed in the body and therefore acetonuria becomes especially marked in absolute fasting or when a fat diet alone is given; it is not present in a proteid diet. It is formed alike from body fat or from fat in the food, and thus it may make its appearance during hunger, when the body fat is being decomposed. Therefore, in order to prevent acetonuria one would give carbohydrates, in order to protect the fat of the food and of the tissues. The production of acetone is consequently also due to cell metabolism. Lack of carbohydrates leads to increased decomposition of body fat, resulting in a change in the proportion of secondary katabolic products eventually leading to acetone.

As to autointoxication from the intestinal tract, it has been shown by Herter's experiments on dogs and rabbits that indol is toxic, but in man its toxic power is slight. The production of toxins of various kinds is without doubt in many cases the initial cause of disturbances in metabolism, but no definite toxic body can as yet be held directly responsible for the results which eventually may appear. This, that, or the other substance, produced in due amount, may simply set in motion a chain of events from which is developed a chain of symptoms remotely connected with the primary action of the toxin. The sensitiveness of the nervous system to toxic substances renders it probable that autopoisons exert a primary influence here, and that many phases of autointoxication are due to primary disturbance of the nervous system.

LOCALIZATION OF MUSICAL CENTERS.

During the last two decades many investigators—Kussmaul, Stumpf, Preyer, Oppenheim, Knoblouch, Charcot, etc.—have conclusively demonstrated that the musical faculty is older than that of speech; that music is a primary and simple phenomenon, while speech is secondary and complex. It is a well-known fact that many birds possess the faculty of producing and reproducing themes, whereas there are but very few that can reproduce the human voice, even after a long tutelage. According to Darwin, wild dogs and jackals howl and learn to bark only after they have been domesticated. Their howl corresponds to song, and their barking to articulated speech. Owen has heard a gibbon sing an octave up and then down the scale. Stumpf relates that his child, 9 months old, could sing two tones, and when 14 months old a full octave. Preyer testifies that children between 8 and 9 months old could correctly sing a tune played on the piano. The daughter of a well-known composer, Dvorak, when 1½ years old, could sing a melody with decided modulations to the accompaniment of the piano; when 2 years old she sang the march from Fatinitza. The 3-year-old Lehman, the child phenomenon of a musical family, played in 1869,

in Zurich, besides Diabella and other pieces, also her own compositions, to the delight of a critical audience.

The following examples illustrate the independent functions of the musical centers. A virtuoso pianist could play most difficult airs during his sleep. A well-known violinist who was subject to attacks of petit mal, never ceased to play, even during his attacks, although he was oblivious of his surroundings. Oppenheim has described ten cases of aphasia, where the faculty of speech was absent, while the faculty of singing, the understanding of melody, notes, and the ability to play the violin remained intact. According to Wildermuth, idiots whose speech is defective have the musical faculties well developed. Seguin has observed a remarkable musical memory in an idiot who could reproduce on the piano any melody sung to him but once.

Cases of amusia, i. e., loss of ability to produce or comprehend music—an abnormality as regards music analogous to aphasia as regards the faculty of speech—conclusively demonstrate that the musical faculties do not depend on the speech faculty. Moreover, just as aphasia represents various forms of articulating defects, viz., the reading, writing, the pronunciation and comprehension of words, so does amusia represent various forms of auditory defects, viz., the reading and writing of notes, singing and playing on instruments, and the comprehension of musical works. Wallaschek and Ballet were the first to classify amusia into motor and sensory, musical agraphia and alexia, etc.

Lasegue observed a musician suffering from aphasia, who was unable to read or write, but could read and sing musical sentences with ease. Lichtheim reported a case of speech deafness who could hear whistling and singing well, but was unable to understand melody. Brazier has described a patient suffering from apoplexy without paresis and aphasia, but deaf to musical tones. The Marseillaise, played by the regimental orchestra, seemed to him like simple noises, while he himself could play the same and other tunes with ease. Charcot reported a case of a cornetist who lost the ability of using his buccinator muscles. Ballet describes a case of a professor of music who suddenly lost the ability of reading music.

The anatomic changes in amusia have been studied of late, and some light has been thrown on the subject. Edgren[1] has collected fifty-two cases of aphasia without amusia, aphasia with amusia, and amusia without aphasia. In Edgren's case the patient was deaf to musical tones; orchestral music seemed to him as noises without melody; he was unable to distinguish between a waltz, polka and march, but he heard and understood speech, and was himself able to speak. At the autopsy it was found that the anterior two-thirds of the first, and the anterior one-half of the second temporal convolutions of the left hemisphere, and the posterior half of the first temporal convolution of the right hemisphere of the cerebrum were destroyed. Edgren concludes from the above that there is only one musical center in the cerebrum, and that it is situated in the anterior two-thirds of the first temporal convolution and in the anterior half of the second temporal convolution of the left lobe, i. e., in front of the center of Wernicke.

[1] Deutsche Zeit. f. Nervenheilkunde, 1894, p. 1.

The physiologic experiments on animals, by Ferrier, Hitzig, Luciani and Tamburini, Bechtereff, Baginsky and Tonnini, have demonstrated that the auditory centers in various animals are situated in the temporal convolutions. The destruction of one of the temporal lobes causes almost complete deafness in the ear of the opposite side, and slight impairment of hearing of the ear of the same side. Munk[2], in his experiments on dogs, has found that the anterior third of the temporal lobe serves for the comprehension of high tones, the middle for middle, and the third for low tones.

Larionoff[3] has made numerous ingenious experiments on dogs, with a view of defining the localization of the auditory centers, and has come to the following conclusions: There are several sensory musical centers situated in the posterior halves of the hemispheres, and several motor centers situated in the anterior halves of the hemispheres of the cerebrum. Of the sensory, two tone centers are situated in the temporal lobes, and one optic center, for the reading of notes, situated alongside of the center for ordinary reading, in the gyrus angularis. The motor center of notewriting probably develops alongside of the center for ordinary writing, in the second frontal convolution. The singing center is situated a little behind the motor center of speeech of Broca, in the third frontal convolution, and is otherwise known as the center of Krause. The motor center presiding over the functions of performing on various instruments develops on exercising, in the anterior part of the central convolution alongside of the motor center of note writing. The center for playing wind instruments is developed in the region governing the movements of the lips, a little above the center of Krause.

There must certainly exist separate centers for the higher functions of music, musical images, conceptions and ideas. Musical images, and musical memory, judging from analogy with the centers of speech, are probably situated behind the tone centers in the region of the posterior association-centers of Flechsig. Musical conception, or the highest center of musical ideation develops in the frontal lobes in the region of the anterior association-centers of Flechsig.

It is to be hoped that greater light will be thrown on this interesting subject in the near future. Not only should autopsies be made in all cases of aphasia and amusia, but also in all deaf and dumb, the majority of whom, according to Bezold, suffer from affection of the auditory centers of the cerebrum.

MALARIA IN THE SOUDAN.

American experience with armies in unhealthy climates is not a peculiar one even in these days of sanitary progress. The British troops in the southern Soudan are, according to a late issue of the *British Medical*

Journal (July 1), suffering from malaria to an extent that far exceeds our Cuban experience. At Fashoda, in the month of March, when the Nile was at its lowest, 280 out of a total of 307 were suffering from the fever. At Karkanji during November, no fewer than 308 out of a total of 390 were laid up, and at Sennaar and Abu Haraz matters were nearly as bad. Not only Europeans but Egyptians suffered. The troopers of the native Egyptian cavalry returning to Omdurman, from the Blue Nile, were almost to a man incapacitated by the fever, and their horses had to be brought down by the native Soudanese infantry. Even the indigenous inhabitants of the country along the Blue Nile do not escape, but are reported as extremely anemic from malarial poisoning. Knowing, as we do, what tropical malaria is and how severe it is often likely to be in its after-effects, this question becomes a serious one for the British military authorities. They undoubtedly have problems to meet in the occupation of their African possessions that will require their best attention. They are fortunate that yellow fever is not also one of their embarrassments, but the situation as regards malaria is bad enough as it is. It is well for us to note such facts from time to time, to realize that while we have troubles of our own they are not altogether peculiar to ourselves.

FATALITIES OF THE FOURTH.

The fatality statistics of the Fourth of July are generally a striking item in the newspapers for a day or two after the anniversary, but the matter is then generally dropped. This year, contrary to the usual custom, the *Chicago Tribune* is keeping up the record and reporting the later as well as the immediate fatalities. In its issue of July 17 it gives a list of 144 deaths directly due to Fourth of July casualties, and another journal editorially remarks that in no Philippine battle has the American death-rate been anything approaching these figures. The chief medical point of interest is the very general prevalence of lockjaw after these accidents, 83 of the 144 deaths having been due to this cause. In New York, Boston, Pittsburg, and Philadelphia all the deaths reported were from this cause, while it was only a little less unusual in several other large cities. Why tetanus infection should be so prevalent on July 4, out of all days of the year, is a question we have not seen satisfactorily answered. The toy pistol has received credit heretofore for an undue proportion of tetanus-infected wounds, but it can hardly be responsible for the whole of the *Tribune's* formidable list. There seems to be an opportunity here for a thorough bacteriologic study which ought to have valuable practical as well as scientific results. Tetanus is a rare complication of ordinary wounds but on this particular holiday the infection seems to be rampant beyond all reason. The first duty of the hour, however, as the *Tribune* says, is not so much to discover the peculiar mode of infection as to remove the obvious original cause. It does not require study to discover that, and the remedy lies in legislation, provided the laws are rigidly enforced, not by empty proclamations of mayors or police instructions, not meant to be obeyed, but by absolute stoppage of the sale and use of the deadly toy pistol and the giant cracker, or still better, the suppression of the whole class of peace-destroying noise-creators in the hands of reckless and irresponsible youths. If we need a more severe lesson, we are pretty certain to get it if we let matters go on. The useless sacrifice of human life has no excuse, and the effort of the *Tribune* to arouse public sentiment against the senseless custom is most praiseworthy. The JOURNAL takes this opportunity to most heartily endorse its action.

MICHIGAN MEDICAL LAWS.

A law recently enacted in Michigan classes with idiots and insane, those suffering from uncured syphilis and gonorrhea, as incapable of marriage. They are not reckoned with idiots and insane, however, as regards responsibility, for it provides that "any person who has been afflicted with syphilis or gonorrhea and has not been cured of the same, who shall marry shall be deemed guilty of a felony, and upon conviction thereof in any court of competent jurisdiction, shall be punished by a fine of not less than $500 or more than $1000, or imprisoned in the State prison at Jackson not more than five years, or by both such fine and imprisonment in the discretion of the court." The law also provides that the wife can testify against her husband, and vice versa, and removes the privilege of medical secrecy in proceedings for this cause. The enforcement of this law will be noted with interest, and it is possible some important new medicolegal question may arise; the questions of the curability and the evidence of cure of these disorders may come up in the courts. Considering the frequency of these disorders, especially gonorrhea, it would seem possible that there is danger of a serious diminution in the number of marriages as a result of such law, and also that it might afford possibilities of blackmail and inconvenient family complications. On the other hand, if it will tend to improve morality and diminish the undeserved suffering that these diseases so often entail, one can only wish the new law success. Another Michigan enactment provides that it shall be unlawful for "any person or corporation except a legally incorporated and reputable college of medicine and surgery having and requiring actual attendance at a course of study of not less than three years of eight months each to issue a diploma or certificate setting forth or implying that the holder thereof is qualified to practice medicine or surgery in any of their branches." This, we take it, applies to the diplomas of the notorious St. Luke's Hospital of Niles, and thus helps in wiping out medical diploma-mills. A penal clause is attached to this law, which will make it imprudent to violate it, and its enforcement ought to be easily practicable. With its new medical practice act and this measure, Michigan ought to be well protected against bogus diplomates and quacks.

NATIONAL DEPARTMENT OF HEALTH.

The coming Congress cannot consistently disregard the voice of the medical profession of the United States, demanding the speedy establishment of a national department of health, first formally expressed by the American Public Health Association, the foremost sanitary organization in the United States, Canada and Mexico, then deliberately and enthusiastically indorsed by the

AMERICAN MEDICAL ASSOCIATION, the representative body of medical men of the entire country; and recommended with practical unanimity—three delegates not voting—by the National Conference of State and Provincial Boards of Health of North America, at its recent meeting in Richmond, Va. While the Canadian and Mexican health officials are constituent parts of this conference, their participation in the act of approval was of the most unselfish character, since both the Dominion and the Republic of Mexico already possess well-organized Federal health departments, such as sanitarians in the United States have so long desired. The executive authority in Canada is vested in the Director General of Public Health of the Dominion, Dr. Frederick Montizambert, who has the status of a deputy minister; and that of Mexico in the Superior Board of Health, of which Dr. Edward Licèaga is president. The scheme proposed and accepted by all three of the national medical and sanitary associations mentioned, and generally known as the Spooner bill, differs in detail from both these, the more direct influence of the several state boards of health being recognized, in accordance with our system of state potentiality, in the composition of the contemplated national board. The indorsement of this measure by the conference of state boards has been, as it were, emphasized by the election of Dr. U. O. B. Wingate, commissioner of health, Milwaukee, Wis., who has been identified with its advocacy on the part of the American Public Health Association and the AMERICAN MEDICAL ASSOCIATION, to the presidency for the ensuing year. Especially since the acquisition of our tropic dependencies have the requisitions of an independent board of health of a distinctively national character been greatly augmented, while the necessity for immediate legislation has become more urgent. Since the several state boards of health are not willing to subordinate themselves to the makeshift methods—of which they have had sufficient experience—of a bureau created for another purpose, but unite in demanding a well-organized responsible, national board, with executive authority, Congress has no alternative but to meet the requisition in the manner indicated by the concerted opinion of the medical and sanitary professionals of the whole country.

LOCOMOTOR ATAXIA WITH CANCRUM ORIS AS A FATAL COMPLICATION.

While the exact nature of cancrum oris is not yet understood, its appearance, course, and termination would stamp it as an infectious process of great virulence. The condition most commonly attends the exanthemata in debilitated children, and it is almost universally fatal. It has also occasionally been observed in adults. Bacteriologic investigation has thus far resulted in the isolation of several different bacteria from the area of disease, but none of these can as yet be considered specific or causative. Therapeutic measures have also been entirely futile in controlling the progress of the disorder or in preventing a fatal issue. A case presenting features of more than ordinary interest has recently been reported by Ness[1]—one of locomotor ataxia in a woman in whom cancrum oris developed as a fatal complication. The patient was 48 years old and had complained of shooting pains in the lower extremities, with paresthesia and a sense of weakness and stiffness about the knee-joint. In a short while, difficulty in walking in the dark and in turning quickly was experienced, and gradually became more marked. There was also difficulty in expulsion of urine and the bowels were constipated, although they became unduly relaxed when laxatives were administered even in small doses. Station was much disturbed. Analgesia and anesthesia were found in both legs below the knees. The knee-jerks were completely abolished. The plantar reflexes were much exaggerated, and the abdominal reflexes and jaw-jerks were well marked. Muscular sense was preserved. There was a slight nystagmus. The pupils were contracted and almost insensible to light stimulus, while they contracted slightly in accommodation. The optic discs were slightly oval, but otherwise normal. A history of alcoholic indulgence was obtained, but none of syphilis. In the progress of the case symptoms of cystitis appeared, and increased severity of the pains required the administration of analgesics. Complaint of obscuration of vision in the right eye led to the detection of a large hemorrhage in the macular region. Vomiting set in, and the patient grew progressively worse. Finally, the temperature became elevated, and the swelling of the lower part of the face on both sides appeared, and to a less extent of the neck immediately below the jaw. The swelling was hard to the touch, as if the tissues were infiltrated with inflammatory products, while the skin itself was but little reddened. In the course of a few days the swelling of the neck had diminished somewhat, but that of the cheeks had increased, while both parotid glands were greatly enlarged. The patient now had a short rigor, and soon the mucous membrane of the mouth also became involved. The condition grew progressively worse, the tissues of the cheek began to slough, diarrhea set in, with incontinence of feces, and the patient gradually sank and died. On post-mortem examination, in addition to the lesions described, considerable necrosis of the under surface of the right temporosphenoidal lobe was found, as a result of extension of the gangrenous process from the cheeks through the skull and the base of the brain. Degenerative changes were found in both the columns of Burdach and the columns of Goll.

[1] Edinburgh Med. Jour., June 1899, p. 595.

Medical News.

DR. JAMES C. WILSON, Philadelphia, sails July 27 for Europe, to be gone several months.

ADDITIONS costing $10,000 are to be made to the University Medical College, Kansas City, Mo.

A ROOF GARDEN for convalescents is to be added to the Union Protestant Infirmary at Baltimore, Md.

DR. J. E. BROWN has retired from the managing editorship of the *Columbus* (Ohio) *Medical Journal*.

DR. E. E. HUBBARD, Kansas City, Mo., has been made demonstrator of pathology in the Medico-Chirugical College of that city.

DR. M. S. FRENCH, Philadelphia, who was secretary of the National Relief Association during the recent war with Spain, has gone to Europe for rest and recreation.

THE RECEIVING wards of the University Hospital,

Philadelphia, are being enlarged on account of the increased number of patients being treated there.

THE ROYAL College of Surgeons of England will celebrate its centenary next year, and preparations are already being made looking forward to the event.

THE HEAD physician of an asylum at Rome, Italy, Dr. Bondi, was recently fatally stabbed on the street by a former patient whom he had discharged as cured.

DR. E. C. RENAUD, St. Louis, Mo., and Dr. E. O. Sisson, Keokuk, Iowa, sail July 29 for Europe to attend the International Ophthalmological Congress, in Utrecht.

ACCORDING to press reports the Ohio State Board of Medical Examination and Registration has refused to recognize Hygeia Medical College, or to issue certificates to its graduates.

BY THE wills of Martin H. Lehmaier and David Kraxaner, the Mount Sinai Hospital, New York City, received $3500, of which $2500 is for the founding of a memorial bed.

ON JULY 12 the graduation exercises of the San Francisco College of Physicians and Surgeons were held. Nineteen men were given diplomas. This college was organized some three years ago.

AT THE recent centennial celebration of the Norwegian residents of Chicago, about $2000 was realized for the benefit of the Norwegian Lutheran Tabitha Hospital of this city.

ACCORDING to the daily papers of Detroit, the question of continuing to employ teachers who are afflicted with consumption is being agitated in that city, although nothing definite has been done.

DR. A. GOLDSPOHN of Chicago leaves for Europe this week. He goes to attend the International Congress of Gynecologists and Obstetricians, at Amsterdam, and will be gone about three months.

THE OREGON volunteers arrived in the port of San Francisco, on the transports *Ohio* and *Newport*, July 13. The list of deaths in the Oregon regiment numbers 59, the major portion due to disease rather than to wounds.

SIR WILLIAM CROOKES, F. R. S,, England, has had conferred on him the Albert Medal of the Society of Arts, "for his extensive and laborious researches in chemistry and physics."

DR. F. E. WAXHAM, having concluded to return to Denver on account of ill health in Chicago, has accepted the chair of internal medicine and laryngology in the medical department of the University of Colorado.

THE MANAGERS of the Maryland School for Feeble-Minded, at Owing's Mills, are contemplating extensive improvements for this institution, to include the erection of a general administration building and several cottages.

THE PARIS ACADEMIE DE MEDECINE has recently elected Professor Hutinel to membership. He occupies one of the two chairs of internal pathology in the Faculty, and is a prominent authority on children's diseases.

SINCE SUCH a long struggle over what is known as the Loan Bill has been won by those in favor of greater improvement of Philadelphia, this city has set aside the sum of $500,000 for the improvement of its system of sewerage.

UNDER THE auspices of the Children's Country Week Association, Philadelphia, 286 children were, during the past week, taken to the country for a few days' outing. This Association deserves great credit for its efforts in lessening the infantile mortality during the hot months.

THE FIRST number of the *Illinois Medical Journal*, the new official organ of the Illinois State Medical Society, has been received. It is well printed, well edited, clear and attractive, and reflects credit on the society and especially on the committee on publication.

SINCE THE festivities of July there have been reported in Pennsylvania 13 cases of tetanus, of which 11 have already resulted fatally. Doubtless as many cases have occurred which have not been reported. In 9 instances tetanus arose from lacerated wounds of the hands, and 4 from gunshot wounds.

DR. JAMES MOORES BALL, St. Louis, Mo., will attend the International Ophthalmological Congress, which convenes in Utrecht, in August. He will read a paper before the Congress on "Excision of the Cervical Sympathetic for Glaucoma," reporting four operations, which are believed to be the first made in this country.

THE NEW buildings of the Jefferson Medical College, Philadelphia, will be formally opened on October 2, next. Dr. T. A. Emmet of New York, one of its graduates will preside. The principal address will be given by Dr. Phineas S. Conner of Cincinnati, who is a graduate of Jefferson. The old college building will give place to a new and enlarged hospital, eventually.

SUIT HAS been entered against the city of Baltimore, Md., for $5000 damages for injurious effects resulting from compulsory vaccination. The plaintiff is a young woman employed in a business house, who claims that she was made ill by the operation and rendered unfit for her regular duty.

THE COMMISSIONER of health of that city, has been making some studies in the prevalence of consumption in Baltimore. He finds that in 1898 the greatest number of deaths occurred in the crowded sections, that is, in the tenement districts and in the negro settlements of the city.

A MAN living in Allentown, Pa., is reported as having been arrested on the charge that he had failed to comply with the laws regarding infectious diseases, in that city. He neither reported the case nor did he call in medical attendance in the case of his child, who subsequently died of scarlet fever. He had no faith in physicians, and further said, "when the Lord called a child no physician could save it."

THE CHINESE Consul General is said to have filed an objection to the decision of General Brooke that commercial treaties between Spain and other foreign countries do not apply to Cuba, and further, that negotiations must therefore be made with the United States in the name of Cuba. It is further stated that the main objection raised is that the Cubans are afraid of the introduction of leprosy by the Chinese.

A PHYSICIAN of Chambersburg, Pa., who is a graduate of the School of Medicine of the University of Maryland, and holds a license from the Board of Medical Examiners of Maryland, recently claimed of the Pennsylvania Medical Council the privilege of a license from that body on the above grounds. The license was refused and the matter taken into the courts, which have sustained the Council in its action.

THE WIDOW of the late Dr. A. A. Kanthack, professor of pathology of Cambridge (England) University, whose early death may be attributed to the sacrificial work he did in the cause of medical science, has just been granted a pension of £60—$300—a year, "In consideration of the eminent services rendered to science by

her late husband." What a pity it is that our government cannot recognize work in this country in the same way.

ACCORDING to *Echo Med.*, July 2, Marguerite Boyenval, the celebrated sleeping woman at Thenelles, France, recently entered her seventeenth year of continuous slumber, the most curious case of lethargy ever scientifically observed. Now 35 years of age, her pallor and emaciation are extreme, although the pulse-beat is over 80. The skin is without sensation, and the arm, if lifted, remains in the air. The only nourishment is by occasional rectal injection.

ACCORDING to press dispatches, Mr. Broderick, replying to Sir Charles Cameron (Liberal), in the English House of Commons, stated that the attention of the foreign office had not been previously called to the fact that, owing to the deaths from cancer, the New York Legislature had endowed a laboratory at Buffalo to study the disease, and further that the British Charge d'Affaires at Washington would forthwith be asked to furnish the government with all possible information regarding the subject.

THE TOTAL expense of Pozzi's new gynecologic pavilion at Paris, with its sixty-six beds, amounted to $88,000. The pavilion is like an art gallery, set down among the buildings of the Broca Hospital, of which it forms a part, as the walls were richly decorated with frescoed landscapes, etc., by some of the foremost artists of the day, at Pozzi's appeal. Other special features are an arrangement for "permanent baths," another for vaginal flushings with sixty liters of water, and a lay committee to care for convalescents after dismissal.

AN UNUSUALLY large number of cases of tetanus, with many deaths, have lately been reported in New York City and vicinity, most of them the result of pistol-shot wounds of the hand during the recent Fourth of July celebration. Several of the cases received intracerebral injections of tetanus antitoxin, and in each case the serum had an immediate effect on the symptoms, tending to show that—as was the case with those in which it was administered early—it would have proved curative if it could have been resorted to before the infection had advanced too far.

ON JULY 11 the Board of Charities and Corrections elected Dr. H. W. Cattell pathologist to the Philadelphia (Blockley) Hospital, to succeed Dr. John Guiteras, resigned. Dr. Cattell was born in Harrisburg, in 1862, and is a graduate of the University of Pennsylvania, 1887, and was for a number of years demonstrator of morbid anatomy in that institution. He was also editor of the *International Medical Magazine* for a long period, but is probably best known for his work in the translation of Ziegler's "Pathology" (American Edition).

AS TO THE danger of infection from domestic animals and pets, Dr. Kevile of Baltimore has found diphtheria markedly prevalent among pigeons, and cases have been reported where the disease has been communicated by them to men. It is also readily communicated from pigeons to rabbits when the two are cooped together. He says that the "gapes" in chickens is probably diphtheria, and the "worm" which is drawn from the throat by poultry raisers is usually a piece of membrane. There is also danger of infection lurking in the fur, hair and feathers.

THE FIRST step has been accomplished in the rebuilding of the Charité Hospital at Berlin: the pathologic museum has been completed, thanks to Virchow's untiring efforts. It has been most justly named after him, and represents all that science and experience can suggest for the utilization of the rich collection for study and class teaching. As the general public now learns at once of scientific matters, the management has thrown open part of the museum to the knowledge-hungry layman that he may learn by personal observation rather than from partially-comprehended newspaper articles.

AT A RECENT meeting in New York City, called by the Medical and Legal Relief Society, a rough draft of a bill designed to protect the public from the interference of "Christian Scientists" in the care of the sick was presented. The bill provided that whoever advised or persuaded another against employing medical or surgical aid in cases of illness or injury, will be guilty of a misdemeanor, and if such illness or injury result fatally, shall be guilty of manslaughter, provided no medical or surgical aid has been received by the patient. The bill was referred to a committee of nine, appointed by the president of the society.

A NEUROLOGICAL SOCIETY was organized in Paris, June 8. It has adopted as one of its by-laws that no member shall present a paper which will require more than fifteen minutes in its delivery, or occupy more than one page of the official organ, in print. The official organ will be the *Revue Neurologique*, which will be issued on the fifteenth of each month. The officers of the society are: president, Professor Joffroy; vice-president, Professor Raymond; secretary, M. Pierre Marie.

THE PARIS correspondent of the *Lancet* states that a Parisian who was lately traveling by train refused to show his ticket to a traveling inspector of the company. The passenger was accordingly summoned by the company for refusing to show his ticket, as he was bound to do by law. He argued, however, that he had not refused to show it (présenter), that he had let the inspector see it so that he could easily satisfy himself as to its being in order, but that he certainly had refused to let the ticket inspector take it into his hands because his hands were so dirty. He, the passenger, therefore was unwilling to put into his pocket a ticket which would be contaminated with microbes and might very likely give him some disease. After a long legal discussion as to the exact meaning of the word "show" (précenter) the court fined the ardent disciple of modern hygiene the sum of one franc.

REPRESENTATIVE W. L. CLIFFE, of the State Pharmaceutical Association of Pennsylvania, recently called on the chief officer in the Bureau of Health office relative to an act lately passed by the Legislature prohibiting the sale of medicines and drugs in second-hand bottles and jars. Mr. Cliffe is reported as saying: (*Ledger*)—"Under the terms of the act it is unlawful for a druggist to fill a bottle brought to his store by a customer unless a prescription is to be refilled. If, for instance, the customer wants Jamaica ginger and brings a bottle which has contained Jamaica ginger the druggist must tell him that he must buy a new bottle. From this fact the customer might think the druggist was working for his pecuniary interest." In his opinion the law will result in much confusion. The penalty is a fine of not more than $25 or imprisonment for the first offense, any subsequent offense to be punished by a fine of $100 or imprisonment not to exceed three months. No legal opinion has yet been expressed.

AN INVESTIGATION by the Lunacy Commission and

the Board of Directors, conjointly, is being held at the Agnew's Insane Asylum, California. Some time ago it became evident that a female patient was pregnant, and as she has been confined to the asylum for some time conception must have commenced while a patient in the asylum. A "trusty" had been seen at various times, by both patients and attendants, to enter a basement window of the women's building. It is stated by the attendants that the fact was at once reported to the superintendent, Dr. F. M. Sponagle, on the daily written reports. When the reports were called for by the investigators, those for the days mentioned by the attendants were found missing, so that no written evidence of the fact having been reported is available. It is rumored that the Napa Asylum is also to be investigated, as stories of similar occurrences at that institution are current. These stories are vigorously denied by the officials at Napa.

BRITISH MEDICAL ASSOCIATION.—The sixty-seventh annual meeting of the British Medical Association will be held at Portsmouth, Eng., August 1, 2, 3 and 4. The meetings of this Association are conducted in a similar manner to those of the AMERICAN MEDICAL ASSOCIATION, being different only in minor details, although there is evidently more time devoted to social functions by our British brothers than is our custom. The working body of the Association is divided up into twelve sections, viz.: *a*, medicine; *b*, surgery; *c*, obstetrics and gynecology; *d*, state medicine; *e*, psychology; *f*, anatomy and physiology; *g*, pathology; *h*, ophthalmology; *i*, diseases of children; *j*, pharmacology and therapeutics; *k*, laryngology and otology; *l*, tropical diseases. The first meeting is a religious one, and is held at one of the large churches, at which a sermon is preached and regular church services conducted. This year the sermon will be preached by the Bishop of Winchester. The general meetings for business, etc., are held in the afternoon. There is no address made at the first meeting, the time being devoted to a report of the Council, reports of committees and other general business. At the general meeting of the second day is delivered the Address in Medicine; this year Sir Richard Douglas Powell is the orator. At the third session, Thursday afternoon, is given the Address in Surgery, by Professor Alexander Ogston. The concluding general meeting is held Friday afternoon, and devoted entirely to business. The section meetings are usually held from 10 a.m. to 1 p.m., and judging from the program, this is all the time that is devoted to section work. No section dinners are held, but in place of these is the great association dinner, to be held on Thursday evening at 7 o'clock. The evening sessions are given up partly to business and partly to pleasure. The first evening, at 8:30, there is a general session, at which the president's address is delivered. On Wednesday evening a reception and concert is to be given by the local profession. On Thursday evening the annual dinner of the Association, which has been referred to above, will be given; later, at 9:30, a reception. Friday afternoon local excursions will take place, and in the evening a reception and ball is given by the Mayor and Mayoress of the city at which the meeting is held. Saturday is, as a rule, devoted entirely to excursions. This year there will be four of these. One is to Salisbury and Stonehenge, which means a trip by rail, and visit to important places at Salisbury and Stonehenge, luncheon tendered by the resident members of the profession and return by coach. The second excursion is to Winchester, which is by rail to this interesting and historic city, with entertainment at luncheon, and return by a different route. The third is the one that would be of the most interest to the majority, it being to the Isle of Wight and Ventnor, and the fourth is to Southampton and the New Forest. As a rule, few of the members of the Association leave before Saturday, and practically all join in these excursions, which are, as a rule, a pleasant relaxation after the week's work, and full of social pleasure. Several members of the profession from the United States are represented in the program as follows: Dr. Woods Hutchinson has a paper on "The Form of the Chest in Tuberculosis, and its Significance;" Ernest Laplace exhibits his new Forceps for Intestinal Anastomosis. Among those on the program for discussion we note Drs. James Tyson of Philadelphia; Wm. Osler of Baltimore; Herman Knapp of New York; Samuel Risley, Philadelphia; George E. deSchweintz, Philadelphia; Samuel Theobald, Baltimore; Stephen Ayres, Cincinnati; H. Scheppegrell, New Orleans; Sargent Snow, Syracuse, N. Y., and J. H. Bryan, Washington.

Therapeutics.

Urotropin in Septic Infection of the Bladder.

This new drug is receiving favorable mention by many observers. In closing a clinical report in *Die Therapie der Gegenwart*, the author, Prof. O. Huebner of Berlin, says:

In the first place it seems desirable only to employ the urotropin treatment in cases in which the alkaline or neutral reaction of the freshly voided urine demonstrates the early appearance in that fluid.

In the second place the administration of the drug must not be discontinued too soon after improvement in the patient's condition has appeared. It will probably be best to continue the use of the urotropin steadily for three weeks, provided that any improvement at all is seen. If then it is discontinued, and the urine again becomes turbid and foul, it should be administered anew for double the length of time; to be then stopped for trial as to the permanency of its effect. A third course, for a still longer time, may then be necessary, etc. The older the disease the longer will be the course of treatment for which we must be prepared.

No objectionable effects upon the digestion or the nervous system from the prolonged use of urotropin in the doses that I used was observed by me. These were 9 to 30 grains (.6-1.95 gm.) daily in children from 7 to 10 years of age. In one case a four-year-old child bore daily amounts of 15 grains (1 gm.) in 3¾-grain (.25 gm.) doses very well. I always administered the drug in divided doses of 3¾ to 6 grains (.25-.39 gm.) given three or four times daily.

The drug has been declared of exceptional value in all the suppurative diseases of the genito-urinary tract; such as pyelitis, cystitis, with ammoniacal decomposition of the urine.—whether due to stricture or bacillary infection—chronic posterior urethritis, prostatitis, and inflammation of the pelvis of the kidney. It is an antidote for the urinary poisoning which so commonly occurs in these cases. In gouty and rheumatic affections, where increased activity of elimination of uric acid and urates is required, its beneficial effect is marked. It is very useful in phosphaturia, its action being apparent for a considerable time after cessation of its administration. It should be employed as preparatory treatment in every case of operation upon the urinary organs, to approximately sterilize the urine and prevent infection of the wound.

Crede's Ointment in Cerebrospinal Meningitis.

Schirmer reported nine cases, in the *New York Med. Monats*, treated by inunctions of unguentum Credé one ounce (31.10 gm.) being applied daily for three days and in case of a relapse one-third of an ounce (10.36 gm.) As adjuvants to the remedy hot water was applied to the spine, and trional ad-

ministered as a sedative when necessary. The nasal fossæ were disinfected. In the cases reported there were no mortalities and no sequelæ, while in several of the cases, the inunctions were followed by immediate improvement.

Headaches.

Dr. Joseph Collins suggests the following prescriptions for various forms of headache:

℞ Pulv. opii.....gr. ss | 03
Zinci phosphidi.....gr. ss | 03
M. Ft. pil No. xx. Sig. One pill three times a day for headaches following the infectious and exogenous intoxicants.

Early in the treatment the following tonic should be administered:

℞ Ferri et ammonii citrat.....gr. xl | 2 60
Liq. potass arsenit.....m. xl | 2 50
Syrup zingiber.....ʒss | 15 55
Infusi calumbæ, ad.....ʒiv | 124 40
M. Sig. Two teaspoonfuls after meals.

UREMIC HEADACHE.

℞ Potassii citratis.....ʒii | 7 80
Tinct. hyoscyami.....ʒii | 7 80
Spts. eth. nit.....ʒii | 7 80
Infusi scoparïæ.....ʒvi | 23 40
M. Sig. Tablespoonful in water three times a day.

HEADACHE ASSOCIATED WITH FLATULENCY AND PYROSIS.

℞ Sodii bicarb.
Bismuthi subgall.
Pulv. acacia āā.....ʒi | 3 90
Liq. ammon. anisi.....ʒii | 7 80
Aquæ destil., ad.....ʒviii | 248 80
M. Sig. Two tablespoonfuls before meals, repeated in three hours if necessary.

HEADACHE WITH ATONIC DYSPEPSIA.

In headaches associated with atonic dyspepsia, but without any considerable flatulency, Collins makes use of the following pills, and especially in the headaches occuring in women:

℞ Ferri sulph.
Quinin sulph., āā.....gr. xv | 1
Sodii arsenitis.....gr. ss | 03
Pulv. rhei
Pulv. zingiber., āā.....gr. x | 65
M. Ft. pil No. 12. Sig. One pill three times a day after meals.

HEADACHE FROM SLUGGISH CIRCULATION.

℞ Ext. cannabis ind.....gr. 1/3 | 02
Ext. gentian.....q. s
M. Ft. pil.

HEADACHES FROM GENERAL ANEMIA.

To overcome the sluggish condition of the digestive tract with headaches dependent upon a general anemia:

℞ Quinin sulph.
Ext. aloes aq., āā.....gr. xii | 78
Pulv. capsici
Pulv. ipecac, āā.....gr. vi | 39
Glycerin, q. s.
M. Ft. pil No. 12. Sig. One pill at midday.

If associated with considerable vital depression, he uses the following pill instead, giving at the same time some absorbable form of iron:

℞ Ext. nucis vom.....gr. ss | 03
Pil. rhei comp.....gr. iii | 20
Pulv. capsici.....gr. ¼ | 016
M. Ft. pil. Sig. One pill at midday.

NEURASTHENIC HEADACHE.

Hamilton prescribes the following in neurasthenic headache:

℞ Ammon. carb.....ʒiii | 11 70
Tinct. moschi.....ʒvi | 23 40
Spts. lavandulæ.....ʒi | 31 10
Elixir ammon. valerianat.....ʒviii | 248 80
M. Sig. Two teaspoonfuls at a dose in water.

The following is recommended by Lucking:

℞ Ext. cannabis ind.....gr. 1/6 | 010
Zinci phosphidi.....gr. 1/10 | 006
Acidi arseniosi.....gr. 1/30 | 002
For one pill. Give twice daily for some time.

Leonard Weber claims that the following combination will relieve headaches promptly, and better than any single coal-tar remedy:

℞ Acetanilid.....gr. i | 065
Phenacetin.....gr. v | 32
Antipyrin.....gr. v | 32
M. Sig. For one powder.

HEADACHE DEPENDENT UPON OVARIAN DISEASE.

℞ Ammonii bromid.....ʒvi | 23 40
Ext. hydrastis fl.....ʒss | 15 50
Tinct. gentian comp.....ʒiss | 46 60
Aquæ.....ʒiv | 124 40
M. Sig. A dessertspoonful three times a day.
—*Sinkler.*

Quinsy.

℞ Tinct. aconiti rad.....m. xvi | 1
Tinct. ferri chlor.....ʒi | 3 90
Sodii chloratis.....ʒi | 3 90
Glycerin.....ʒvi | 23 40
Aquæ, q. s. ad.....ʒii | 62 20
M. Sig. A teaspoonful every hour to be swallowed slowly and left as long as possible in contact with the fauces.
—*A. H. Smith.*

℞ Potassii bromid.....gr. lxxx | 5 20
Sodii salicyl.....ʒi | 3 90
Tinct. opii deod.....ʒi | 3 90
Cascara cordial, q. s. ad.....ʒi | 31 10
M. Sig. Teaspoonful every four hours in water.
—*E. Fletcher Ingals.*

℞ Tinct. guaiaci ammon.
Tinct. cinchonæ comp. āā.....ʒss | 15 50
Mellis despumat.....ʒiss | 46 60
Bene simul agita, et adde:
Potassi chlorat.....ʒiiss | 9 75
Aquæ, q. s. ad.....ʒviii | 248 80
Fiat gargarysma. Sig. Use as a gargle every half hour and swallow a teaspoonful every four hours.
—*Samuel O. L. Potter...*

℞ Ol. eucalypti.....m. xv | 72
Spts. camphor.....ʒiss | 5 85
Tinct. guaiaci.....ʒiiiss | 13 65
Glycerin, q. s. ad.....ʒi | 31 10
M. Sig. Ten drops on sugar, to dissolve in the mouth, every hour or two.
—*Miles.*

Hay Asthma.

The asthma of hay-fever is often intense and demands measures for its relief apart from what may be done for the constitutional condition. A combination which has served this purpose most efficiently in a large number of cases is the following, which was originally advised by Mays:

℞ Phenacetin.....gr. lxiv | 4 16
Quinin sulph.....gr. xxii | 1 43
Ammonium chlorid.....gr. xc | 5 85
Pulv. capsicum.....gr. iv | 26
Strychnin sulph.....gr. i | 065
Make in 32 capsules and give one as needed.

The phenacetin here relieves the neurotic portion of the attack which is often very prominent. The quinin is antiperiodic. The ammonium chlorid is strongly expectorant and markedly relieves the congestion of the mucous membranes. The capsicum neutralizes the depressant effect on the stomach of the phenacetin, while the strychnin of course is the strongest general tonic with very powerful action upon the respiratory system.

Cholera Infantum.

In the treatment of cholera infantum it must never be forgotten that wonderful results are possible, even in apparently moribund cases, from thorough flushing of the colon. In an infant of 14 months, ill with this disease for sixty hours, with cyanotic skin, cold extremities and a rectal temperature of 104 degrees, Stengel reports immediate relief from the pressing symptoms, with ultimate recovery, by the introduction into the bowel, through a catheter inserted 12 inches, of two quarts of water at a temperature of 90 degrees. The water is permitted to flow out through the tube, thus washing the bowel as thoroughly as possible to free it of infective and fermenting

material. By this method the temperature is reduced more surely than by the bath, and at the same time rational and harmless effort is made to remove the cause of the disease. Very often also in these cases the terrible collapse is in no small part due to a circulation depressed by the loss of blood-serum through the watery discharges from the bowels. These discharges are so profuse that the amount of uncombined water in the tissues rapidly becomes tremendously reduced, and the heart fails from very lack of sufficient pressure in the vena cava to fill the auricle, by reason of diminution in the quantity of the circulating fluid. This indication for relief, of what is practically shock, is promptly and surely met by leaving in the bowel, for absorption after the flushing, a small quantity of water. Beyond doubt it is the prompt absorption of this fluid by the thirsty tissues that causes these little patients so instantly to show beginning recovery from their terrible collapse. In addition a few fractional doses of calomel to clear the upper bowel of offending material, a diffusible antiseptic, such as spirits of chloroform and aromatic sulphuric acid, with a little paregoric for the powerful supporting qualities of the opium, and sponging the skin with cool water or alcohol, constitute a practical, simple and effective method of dealing with these distressing cases.

Acute Diarrhea.

A very excellent formula for the acute diarrhea of children in summer is one suggested by Hare. It combines antiseptic and astringent properties with the supporting and analgesic qualities of minute doses of opium. It is as follows:

R.	Aromatic acid sulph.....gtt. xxiv	1	20
	Ol. caryoph.....m. viii		50
	Tinct. opii. camph.....f3i	3	75
	Spts. chloroform.....gtt. xlviii	2	40
	Syrup zingiber q. s. ad.....f3iii	90	

Mix. Sig. A teaspoonful every two hours.

Miscellany.

Foreign Bodies in Esophagus.—If a fish bone or any foreign object has been swallowed, it can be safely and easily extracted, according to a communication in the *Journal d' Hygiene* of June 29, by swallowing some thread snarled into a tangle, keeping hold of one end of the thread. When it has been swallowed, pulling it out by the end held will bring the foreign article with it.

Treatment of Exophthalmus by Ligature of Carotis.—There are 58 cases of exophthalmus on record, treated by ligating the carotis communis, with 26 cures. Bodon reports 2 more, both successful. In one the affection persisted until the carotis on both sides was litigated. The dilated vena ophthalmica was resected on account of violent, continuous headache.—*Deutsche Ztft. f. Chir.*, li. 6.

Malaria and Lime.—A recent communication to the Paris Academie de Medecine asserts that countries in which the upper layers of the soil, the mud and river beds, contain a large proportion of lime, are exempt from malaria, and suggests that malaria might possibly be banished from localities where it prevails by artificially incorporating lime with the superficial layers of the soil.

Tuberculous Splenomegalia.—A case diagnosed as a malignant neoplasm of the spleen, accompanied by influenza, phlegmasia alba and diarrhea, although the blood was normal, was found at the autopsy to be primary tuberculosis of the spleen with no manifestations elsewhere. The organ was enormous (1200 cg.), the hypertrophy caused by hemorrhages and necrosis of the splenic tissue.—*Gaz. degli Osp.*, June 27.

Roux Method of Preventing Relapse of Femoral Hernia.—After removing the hernial sac the femoral vessels are drawn out and Poupart's ligament fastened to the pubis with a pointed wire shaped like a double pointed tack, driven into the pubis, slightly slanting, so that one leg is nearer the interior of the pelvis than the other. This contrivance affords a solid support like a lattice work, preventing the recurrence of the rupture. —*Anjou Med.*, 1899, No. 2.

Old Oregon Law Repealed.—The supreme court of Oregon holds, In re Ferdon, that the medical practice act of that state, of 1895, operates as a repeal of the former law on the subject, including in its repeal the provision in the act of 1899, as amended in 1891, which required that any itinerant vendor of any drug, nostrum, medicine, ointment or appliance of any kind intended for the treatment of disease or injury, who should, by writing or printing or any other method, publicly profess to cure or treat diseases, injuries, deformities or ailments of any kind thereby to take out a license.

Fat in Urine Pathognomonic of Yellow Fever. E. EDELMANN asserts that a granulo-fatty degeneration occurs in this disease, most pronounced and first manifested clinically in the kidney. Fat in the urine is therefore pathognomonic of yellow fever, a fact never signaled before, he states. The first day mucin is noted in the urine; after this albumin and fat, and we can follow, step by step, the destructive and necrotic process of the invasion of the kidneys by the fat. When icterus follows, the renal lesions become much aggravated by the irritation of the bile.—*Havana Medica*, June.

Diabetes from Copaiba.—Bettman relates that a person with a light case of diabetes, subsequent to gonorrhea, and slight gastric disturbances, found that the amount of sugar in his urine increased from 13 and 20 grams a day to 45 and 72 with the ingestion of 2.5 to 3 grams of copaiba. Further tests confirmed this experience, that copaiba produces diabetic phenomena in the predisposed, except when there are cutaneous lesions, erythema or urticaria, in which case the renal modifications are usually absent. Turpentin has been known to produce a similar effect.—*Berliner Klin. Woch.*, 22.

Death from Electricity.—Prevost and Battelli have been experimenting with dogs, at Geneva, and announce that animals apparently killed by an electric shock can be revived by prolonged and persistent artificial respiration. The effect of a current of 2500 volts is to arrest the functions of the nervous system and cause the cessation of circulation. Artificial respiration and traction of the tongue are particularly effective in this condition if kept up long enough for the nervous system to recover from the effects of the shock, when all is restored to normal. But with a weak current, forty-five volts, if the heart partially or entirely stops beating it is necessary to send a current of a higher tension through the body for a brief stimulus, supplemented by artificial respiration, to restore suspended animation.

New Instrument for Gauging the Arterial Pressure.—Prof. G. Gartner of Vienna has invented an apparatus, the "Tonometer," which consists of three parts connected, by rubber tubes, with the three ends of a T-shaped tube: a pneumatic ring that fits over the finger, a manometer and a rubber bulb, forming a hermetically closed hole. The ring is about 1 cm. wide with a metal tube inserted at one point, a thin rubber membrane drawn air-tight over the inner end. The ring is fitted over the second phalanx of a finger or the end phalanx of the thumb. The blood is then expelled from the first phalanx by means of a thimble-like contrivance, and pressure is produced in the pneumatic ring by pressure on the bulb. The thimble is then removed, leaving the finger pulp empty of blood. The pressure on the bulb is then gradually suspended, and at a certain moment the blood rushes into the tip of the finger, when the degree of pressure can be read on the manometer. A mercury manometer is more precise in its indications, but for general use the Bourdon metal manometer will be found sufficiently accurate.—*Munch. Med. Woch.*, June 27.

Right of Physician to Practice Dentistry.—The question was presented to the supreme court of the state of Rhode

Island, in the recent case of State vs. Beck, whether authority to practice medicine and surgery gives the right to practice dentistry. The answer, the court says, depends on the construction to be given to the statute regulating the practice of dentistry taken in connection with that regulating the practice of medicine, as independent of these statutes, there can be no doubt of the right of a physician to practice dentistry. Now, the one Rhode Island statute provides that all persons intending to enter on the practice of dentistry must pass a satisfactory examination before the board of registration in dentistry and get a certificate which shall be registered with said board. The other statute makes it unlawful for any person to practice medicine or surgery, in any of its branches, without first obtaining and registering a certificate from the State Board of Health. In the passage of the act relating to the practice of dentistry, the court thinks that it was the evident purpose to protect the public from being imposed on by persons who, while holding themselves out as competent to extract, clean, or repair teeth, or replace them by artificial ones, yet, from want of instruction and skill in the art, were wholly unfit to perform such a delicate and highly important function. For this and other reason, it holds that, while, by the strict terms of said statute, taken by itself, it doubtless does prohibit physicians, as well as all other persons, from practicing dentistry without first obtaining the required certificate, as the inhibition is general, and no exception is made in favor of physicians, nevertheless, it is not to be construed as applying to the practice of dentistry by regular physicians. A "physician," it continues, is one who practices the art of healing disease and of preserving health; a prescriber of remedies for sickness and disease. He is presumed to be familiar with the anatomy of the human body in its entirety; to understand the science of physiology and the laws of hygiene; and to be able to minister, as far as may be, to the relief of pain, disease, and physical ailments of all sorts and kinds whatsoever. His certificate authorizes him to practice medicine and surgery in all its branches. Dentistry is now a well-recognized branch of surgery. A dentist is a dental surgeon. That sphere is included in the larger one of physician and surgeon. Thus does the court come to maintain that a fair and reasonable construction of the two statutes, taken together, comes to this: That by the use of the broad and general language used in regulating the practice of medicine and surgery it was intended to except physicians and surgeons from the restrictions imposed on other persons regarding the practice of dentistry. It also takes account of the fact that any construction of the law which would prevent the general practitioner from treating any part of the human body, or would restrict him in the discharge of his professional duties, would be a menace to the public health, and would deprive the physician of his right to practice a branch of his profession that is as old as the history of medicine itself.

Rational Treatment of Pulmonary Tuberculosis.—There is, perhaps, no more hopeful subject in the whole realm of medicine than the treatment of pulmonary tuberculosis. That spontaneous recovery not rarely takes place is well known and generally recognized, and that much can be done by judicious management and the intelligent use of remedial agents to bring about such a result is being demonstrated daily. Nor is it too much to hope that the near future will provide us with a therapeutic agent as efficacious in the treatment of tuberculosis as the antitoxin of diphtheria is in the treatment of that disease. The united and organized efforts being made at present in many parts of the world for the suppression of tuberculosis give promise and justify hope that the disease will gradually be rendered less prevalent and less fatal.

An interesting consideration of the rational treatment of pulmonary tuberculosis, based on comparative studies extending over a period of nearly twenty-four years, of some ten thousand carefully recorded cases, was presented at the International Congress for Tuberculosis, held recently at Berlin, by Coghill[1], who died from perforating ulcer of the stomach only a few days afterward, and who had been for many years senior physician in the Royal National Hospital for Consumption and Diseases of the Chest, at Ventnor. Coghill recognized two distinct stages of the disease, the acute or pyrexial, and the chronic.

The former has much the graver significance. It usually passes into the second, or it may recur again and again in the course of the latter, indicating a resumption of destructive activity.

The available therapeutic methods may be grouped under the following heads: 1. Hygiene or general treatment; 2, regimen or dietetics; 3, medical treatment, including the symptomatic and the special.

In acute pulmonary tuberculosis, absolute repose of body and mind should be secured so far as possible. In extreme cases it may even be necessary to insist on the continuous maintenance of the horizontal posture, not necessarily in bed though, for a considerable length of time. The equability of the temperature of the air is of more importance than its range. It should not be allowed to vary much from 55F. It is better to make the patient comfortable, if necessary, by additional light covering than by raising the temperature. If these conditions can, with proper precautions, be fulfilled in the open air, so much the better. If the patient is confined to the room, this should be large, and well ventilated, and freely exposed to air and sunshine, with the windows, and if possible the doors also, open day and night, and with the bed standing well out from the wall. Conversation, especially on exciting or depressing topics, should be deprecated, but the patient should be encouraged to occupy his mind outside of himself by the perusal of light and cheerful literature. The general bath should be prohibited, but if possible the whole body should be sponged every night and morning with eau de cologne, or spirit of wine and hot water, or toilet vinegar. A large meal of any kind, or red meat should not be permitted at any time. Food should be given in small quantities at regular intervals, e. g., every two hours during the day, and every three during the night. It should be varied as much as possible, both in materials and in cooking, in accordance with individual or national taste. It should consist of fish, poultry, white game, pigeons, sweetbreads, eggs, light soups, milk and egg pudding, and rice, while ripe fruits, especially strawberries, may be taken freely, but always early in the day. The more substantial of these should be given in the form of meals at regular intervals alternately with the lighter, which should be taken as refreshment in the intervals. Milk ab libitum may alternate or be taken with each more substantial repast, if the capacity and taste of the patient permit it. If the digestion is weak, predigested food, or peptonized meat extracts may be given. Stimulants should be used with extreme reserve. If the appetite is poor, and the strength and vitality are low, a tablespoonful of old Cognac beaten up with a fresh egg may be given at intervals during the day, according to the demands of the case, or two or three teaspoonfuls of mature whisky in each ration of milk. A glass of dry champagne may be allowed twice a day with a meat meal if the mouth is dry and the appetite is poor. Malt liquors and all red wines are more or less incompatible with a diet into which milk largely enters. Lemonade taken with red wines seems to make them lighter, more palatable, and more digestible.

The medical treatment is general, symptomatic, or special or specific. Drugs should never be used, except on the clearest indications. If the tongue is coated, minute repeated doses of calomel may be given every ten minutes, until one-third of a grain has been taken, followed by sodium salicylate in ten-grain doses, with tincture of nux vomica and gentian mixture, once or twice a day, and if there are hepatic complications, with or

[1] Lancet, June 3, 1899, p. 1479.

without constipation, compound tincture of rhubarb may be added in appropriate doses. In case of failure, ammonium chlorid in twenty-grain doses may be substituted for the salicylate. When the tongue is epitheliated or irritable, and there is nausea, preparations of bismuth are indicated. If there is anorexia and the tongue is clean, small doses of strychnin, dilute hydrochloric acid and quinin may be given. When cough is distressing or injurious a few drops of a mixture of chloroform one part and guaiacol three parts may be inspired as deeply as possible through the mouth and respired through the nose. Cod-liver oil and malt extract are special foods directed to supplement nutrition. Tuberculin is the single remedy that has established any distinct claim to be considered a specific.

Creosote and guaiacol and their carbonates have in recent years found much favor in the treatment of pulmonary tuberculosis. These may be advantageously combined with strychnin hypodermically. They reduce the temperature without causing undue perspiration or reaction of any kind. When the pyrexia has been reduced by this means smaller doses by the mouth are substituted, and when markedly strumous indications are present, from 5 to 15 minims of tincture of iodin in cod-liver oil are given in addition three times a day. If the temperature does not quickly respond to injections of guaiacol, 15 grains of sodium salicylate together with 5 grains of antifebrin or phenacetin, or 10 grains of antipyrin are given. In the presence of cyanosis and indications of cardiac debility, 5 grains of caffein citrate are added. Guaiacol may be given hypodermically, also in chronic cases when the destruction of lung is extensive, and the amount of expectoration is large and does not lessen when the drug has been given internally. Guaiacol carbonate has been found useful in cases complicated by diarrhea and other irritable conditions of the bowel.

In cases of chronic pulmonary tuberculosis the treatment indicated is mainly disciplinary and dietetic, and environment now takes a more important part in the process of convalescence, though the tendency of the arrested morbid process is toward repair and recovery, and purely hygienic treatment assumes an important role. To be efficacious this must be carried out systematically, and in properly located and appropriately constructed sanitariums under efficient medical control, and it must be carefully adapted to the idiosyncrasies and personal requirements of each individual patient. At the Royal National Hospital for Consumption and Diseases of the Chest, at Ventnor, the following rational therapeutic system is carried out: 1. The diet, into which milk largely enters, is ample, simple, and yet varied, and is adapted to the general condition of the patient and the stage of the disease. It is arranged into convalescent, special, and pyrexial varieties, but in every detail it is modified according to the exigencies of each case. 2. Rest and exercise are carried out on the principles generally recognized. 3. The freest exposure possible to the open air, of all the patients, pyrexial patients being carried on their beds or couches on to the veranda on which their rooms open, and the supplementing of the natural ventilation of the rooms by mechanical means while in occupation. 4. The scientific treatment of symptoms by remedies directed as much as possible to the disease processes within the body in which they originate. 5. The reinforcement of the purely medical supervision of the patients by a body of specially trained nurses. 6. The appreciation at their true value of the accessory conditions of climate, site, elevation, shelter or exposure, rainfall, sunshine, and nature, and the relations of soil to water.

New York City.

WATER POLLUTION.—The unprecedented drought of the early summer has not only brought to attention the menace of a water famine but, as well, the quality of the water-supply of the several distinct boroughs of the city. Two of these corporate entities, Manhattan and the Bronx, depend on the Croton system; Brooklyn combines both public and private sources of supply derived from outlying districts of Long Island; Queens has a small system only just capable of supplying its present needs; Richmond draws on several sources in Staten Island. The present complaints are most strongly made in the two large boroughs, Manhattan and the Bronx and Brooklyn, and the complaints bear on quantity and quality. As for the former item, temporary relief will follow the coming of normal conditions of precipitation, and the dangerous inefficiency of the system will probably be quite forgotten until the next period of stress which shows the inefficiency of the service system. The remedy of the poor quality will not be the same, for abundant rains falling on the polluted watershed and catchment area will at first make matters worse. At present the Croton water is muddy to look at, populous under the microscope, and decays most rapidly when set aside in any vessel. This has been found particularly true of the Croton service in Manhattan, and in Brooklyn, of the municipal supply known as Ridgewood. Whatever is now suggested for the improvement of the water-supply, both in quantity and quality, falls for the present under two heads. The first looks to the increase of the present supply by including larger territory in the catchment area. In the case of New York and Brooklyn there are physical reasons why such measures shall be only palliative. The available area of watershed is determined by the engineer with his application of physiographic principles, and these show that the limit has been almost reached. The fuller appreciation of the eventual needs of the metropolitan district looks to the Adirondack sources for the supply of unlimited water of the purest character. The distance is great and the initial expense will be great. But there are intermediate cities along the Hudson which will take the service and by so doing reduce the cost to New York City. This plan is now being worked out in full detail, and enough of its possibilities is known to prove that it is no more difficult than the plan now under way to supply the cities of central California, as far as San Francisco and Oakland, with mountain water from Lake Tahoe.

SOFT COAL SMOKE NUISANCE.—Among the many duties imposed on the Department of Health, by the New York Consolidation Act or charter, is the repression of the nuisance caused by the using of soft coal on vessels within the municipal waters and ashore at various factories. The evil is of recent growth, for New York has always been an anthracite-burning community until the opening of new fields of bituminous coal, new transportation combinations, together with the enhanced cost of mining anthracite has made it an objective point for bituminous operators. The law prohibits the use of bituminous coals, but in practice the law is not enforced in cases where smoke-consumers are used which really do consume the smoke. The first offenders were the tugs and ferry-boats. When it was found impracticable to equip these vessels with efficient smoke-consuming devices the law was rigidly enforced against them and they were obliged to return to the use of anthracite. The most recent offenders are certain manufacturers in Brooklyn, mainly breweries and a new sugar refinery. For several weeks they have been belching out foul clouds of black smoke. There is an active citizens' association organized expressly to look after users of offensive soft coal. They brought suit through the ordinary police channels and met a setback. But the Department of Health took note of the matter from press reports, and the sanitary police are now securing the necessary evidence which will shortly enable the Department to take action in the case. Over any large city there must be a certain amount of smoke, but in the clear air of New York any offender against the smoke ordinance is very noticeable, and with interest manifested by the Department of Health the nuisance is soon abated.

The Public Service.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., to and including July 13, 1899:

Percy Ahrons, acting asst.-surgeon, from New Orleans, La., to Division of Cuba.

Dallas Bache, colonel and asst. surgeon-general, U. S. A., president of a board convened at West Point, N. Y., for the physical examination of candidates for admission to the U. S. Military Academy.

Edward N. Bowen, acting asst.-surgeon, from Springfield, Mass., to San Francisco, Cal., for duty in the Department of California.

Henry H. Bradley, acting asst.-surgeon from the general hospital at

Savannah, Ga., to Camp Meade, Middletown, Pa., to accompany the 19th Inf. to Manila, P. I.

Thomas S. Bratton, captain and asst.-surgeon, U. S. A., from Fort Stevens, Tybee Island, Ga., to Camp Meade, Pa., to accompany the 19th Inf. to Manila, P. I.

Rollin T. Burr, acting asst.-surgeon, from Pomona, Cal. to Division of Cuba.

Joseph H. Chmelicek, acting asst.-surgeon, from New York City to San Francisco, Cal., for duty in the Department of California.

A. P. D. Cleary, acting asst.-surgeon, now on duty at Atlanta, Ga., to proceed to Camp Meade, Pa., to accompany the 19th Inf. to Manila, P. I.

Samuel P. Cottrell, acting asst.-surgeon, from the Department of Santiago and Puerto Principe, Cuba, to duty at Camp Meade, Middletown, Pa.

Elmer A. Deane, lieutenant and asst.-surgeon, U. S. A., from duty as attending surgeon and examiner of recruits at St. Paul, Minn., to San Francisco, Cal., for duty in the Department of California.

Lieben De Poorter, Jr., acting asst.-surgeon, from New Orleans, La., to the Division of Cuba.

Charles M. Gandy, captain and asst.-surgeon, U. S. A., member of a board convened at West Point, N. Y., for the physical examination of candidates for admission to the U. S. Military Academy.

Leonard K. Graves, acting asst.-surgeon, leave of absence extended.

Joseph N. Henry, major and surgeon, Vols., assigned to the 31st Inf. Vols., to proceed from Washington, D. C., to Fort Thomas, Ky., for duty with his regiment.

Deane C. Howard, captain and asst.-surgeon, U. S. A., from Fort Columbus, New York Harbor, to West Point, N. Y., for temporary duty.

Jefferson R. Kean, major and surgeon Vols., (captain and asst.-surgeon U. S. A.) now on duty as chief surgeon Department of the Province of Havana and Pinar del Rio, Cuba, is relieved from his station at Fort Warren, Mass.

Louis A. La Garde, major and surgeon, U. S. A., member of a board convened at West Point, N. Y., for the physical examination of candidates for admission to the Military Adademy.

Clarence B. Millhoff, lieutenant and asst.-surgeon, U. S. A., former orders so amended as to direct him to report to the commanding general, Department of California, on the arrival of the 19th Inf. at San Francisco, Cal.

Francis S. Nash, acting asst.-surgeon, to examine recruits for the 27th Inf., Vols., at Washington, D. C.

George J. Newgarden, captain and asst.-surgeon, U. S. A., from Fort Adams, R. I., to Camp Meade, Pa., for duty at the camp hospital.

George Newlove, acting asst.-surgeon, member of an examining board at Fort Leavenworth, Kas., in place of Lieut. Basil H. Dutcher, acting asst.-surgeon, U. S. A., relieved.

James M. Parrott, acting asst.-surgeon, from Kinston, N. C., to the Division of Cuba.

Frederick H. Sparrenberger, acting asst.-surgeon, from Passaic, N. J., to the Division of Cuba.

Frederick C. Weaver, acting asst.-surgeon, to San Francisco, Cal., for duty in the Department of California.

J. L. White, acting asst.-surgeon, from the Department of Porto Rico to report at Washington, D. C., to the Surgeon-General.

Timothy E. Wilcox, major and surgeon, U. S. A., from duty in New York City to post duty at Fort Schuyler, N. Y.

Assignments.—The following assignments were made of medical officers recently appointed in the U. S. Vols., to rank from July 5, 1899:

To the 26th Infantry, Vols., headquarters at Plattsburg Barracks, N. Y.: Major Charles F. Mason, surgeon; Capt. Frederick A. Washburn, Jr., asst.-surgeon; Lieut. John E. Boyd, asst.-surgeon.

To the 27th Infantry, Vols., headquarters at Camp Meade, Pa.: Major Ogden Rafferty, surgeon; Capt. James H. Hepburn, asst.-surgeon; Lieut. Leonard K. Graves, asst.-surgeon.

To the 28th Infantry, Vols., headquarters at Camp Meade, Pa.: Major Thomas C. Chalmers, surgeon; Capt. S. Chase de Krafft, asst.-surgeon; Lieut. Allen J. Black, asst.-surgeon.

To the 29th Infantry, Vols., headquarters at Fort McPherson, Atlanta, Ga.: Major Charles L. G. Anderson, surgeon: Capt. James C. Miner, asst.-surgeon; Lieut. Lomax S. Anderson, asst.-surgeon.

To the 30th Infantry, Vols., headquarters at Fort Sheridan, Ill.: Major John R. McDill, surgeon; Capt. James J. Irwin, asst.-surgeon; Lieut. Albert H. Eber, asst.-surgeon.

To the 31st Infantry, Vols., headquarters at Fort Thomas, Ky.: Major Joseph N. Henry, surgeon; Capt. Abram L. Haines, asst.-surgeon; Lieut. Ralph S. Porter, asst.-surgeon.

To the 32d Infantry, Vols., headquarters at Fort Leavenworth, Kas.: Major Frank C. Armstrong, surgeon; Capt. John R. Hereford, asst.-surgeon; Lieut. William H. Cook, asst.-surgeon.

To the 33d Infantry Vols., headquarters at Fort Sam Houston, Texas: Major B. Albert Liebeman, surgeon; Capt. W. E. Parker, asst.-surgeon.

To the 34th Infantry, Vols., headquarters at Fort Logan, Colo.: Major James E. Shellenberger, surgeon; Capt. Frank W. Foxworthy, asst.-surgeon; Lieut. Patrick J. McKenna, asst.-surgeon.

To the 35th Infantry, Vols., headquarters at Vancouver Barracks, Wash.: Major Julius A. Schnelke, surgeon; Capt. Luther B. Grandy, asst.-surgeon, Lieut. John A. Metzger, asst.-surgeon.

Captains James H. Hepburn and Luther B. Grandy will join their respective regiments upon the arrival thereof in the Philippine Islands.

The other officers named in this order will proceed at once to the headquarters of their respective regiments and report in person to their regimental commanders for assignment to duty.

Movements of Navy Medical Officers.—Changes in the medical corps of the U. S. Navy for the week ending July 15, 1899:

Surgeon L. B. Baldwin, detached from the Key West Naval Station and ordered to hospital, New York, for treatment.

P. A. Surgeon R. G. Brodrick, granted sick leave for six months.

Asst.-Surgeon R. K. McClanahan, detached from the naval hospital at Philadelphia, Pa., and ordered to the Key West Naval Station.

P. A. Surgeon L. L. Young, sick leave extended three months.

Surgeon J. M. Steele, detached from duty in connection with recruiting rendezvous at Baltimore, Md., and ordered home to wait orders.

Marine-Hospital Changes.—Official List of Changes of Station, and Duties of Commissioned and Non-Commissioned Officers of the U. S. Marine-Hospital Service, for the seven days ended July 13, 1899.

Asst.-Surgeon W. R. McAdam, granted leave of absence for fourteen days.

Asst.-Surgeon Carl Ramus, relieved from duty at the Cape Charles Quarantine Station and directed to proceed to Havana, Cuba, and report to Surgeon H. R. Carter for duty.

Acting Asst.-Surgeon J. P. C. Foster, granted leave of absence for thirty days.

Hospital Steward W. J. Stearns, relieved from dury at New York City (Stapleton, Staten Island), and directed to report to the medical purveyor New York City, for duty.

Hospital Steward G. C. Allen, relieved from duty at Baltimore, Md., and directed to proceed to New York City, and report to the commanding officer for duty and assignment to quarters.

Hospital Steward F. H. Peck, relieved from duty at the Egmont Key Detention Camp and directed to proceed to Baltimore, Md., and report to the commanding officer for duty and assignment to quarters.

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General of the U. S. Marine-Hospital Service, during the week ended July 15, 1899:

SMALLPOX—UNITED STATES.

Florida: Jacksonville, July 1 to 6, 3 cases.
Illinois: Chicago, June 24 to July 1, 2 cases.
Kentucky: Louisville, June 23 to July 6, 8 cases.
Louisiana: New Orleans, June 24 to July 8, 5 cases, 1 death; Shreveport, June 24 to July 8, 1 case.
Massachusetts: Boston, July 8, 3 cases, 2 deaths.
Mississippi: Natchez, July 7, 1 case.
New York: New York, June 24 to July 8, 7 cases, 1 death.
North Carolina: Charlotte, June 24 to 30, 1 cases.
Ohio: Cincinnati, July 7, 2 cases; Cleveland, July 1, 2 cases.
Oregon: Portland, June 29 to date, 4 cases.
Pennsylvania: Philadelphia, July 1 to 8, 4 cases.
Virginia: Cape Charles, July 8, 1 case; Danville, July 6, 3 cases, total 30 cases; Norfolk, July 6, 6 cases; Portsmouth, July 8, 4 cases.
Washington: Tacoma, July 10, 3 cases.

SMALLPOX—FOREIGN.

Argentina: Buenos Ayres, April 1 to 30, 1 death.
Brazil: Rio de Janeiro, May 27 to June 8, 77 cases, 29 deaths.
China: Fuchau, May 6 to 13, prevalent.
Cuba: Havana, June 29, 1 death.
England: London, June 17 to 24, 1 case.
France: Marseilles, June 25 to July 2, 1 case.
India: Bombay, June 6 to 13, 4 deaths; Madras, May 27 to June 2, 2 deaths.
Mexico: Mexico, June 23 to July 2, 8 cases, 3 deaths.

YELLOW FEVER.

Argentina: Buenos Ayres, April 1 to 30, 4 deaths.
Brazil: Rio de Janeiro, May 27 to June 9, 19 deaths.
Cuba: Havana, July 6, 2 cases; Santiago June 15 to July 10, 148 cases, 28 deaths.
Mexico: Vera Cruz, June 29 to July 6, 25 deaths; on bark *Dolores Romano* at Vera Cruz, Mexico, July 1, 7 cases.

CHOLERA.

India: Bombay, June 6 to 13, 1 death; Calcutta, May 27 to June 3, 23 deaths; Madras, May 27 to June 2, 3 deaths.

PLAGUE.

Egypt: Alexandria, June 16 to 23, 6 cases remaining.
India: Bombay, June 6 to 13, 53 deaths; Calcutta, May 27 to June 3, 32 deaths.
Japan: Formosa, Tamsui, April 26 to May 3, 147 deaths.

CHANGE OF ADDRESS.

Adams, J. L., from Morgan, Minn., to Anaconda, Colo.
Becker, J. P., from 505 S. Warren to 318 W. Onondaga St., Syracuse, N.Y.
Brown, G. M., from Chicago to Davis Junction, Ill.
Brooks, S. D., from Nat'l Quarantine Sta., Angel Island, Cal., to U. S. Marine Hospital, Portland, Me.
Bennett, A. L., from St. Anne, Ill., to 1463 Pearl St., Denver, Colo.
Crosthwait, W. L., from Louisville, Ky., to Holland, Texas.
DeBoy, H. B., from 555 Blue Island Av. to 629 S. Ashland Av., Chicago.
Edmendorf, E. H., from Galveston to San Antonio, Texas.
Gates, L. A., from Thermopolis, Wyo., to Bridges, Mont.
Goggin, R. J., from Pulcifer to Swing, Wis.
Hixon, from Dupont to Continental, Ohio.
Kay, A. E., from 1481 Monroe St. to 1060 Warren Av., Chicago.
Lawson, F. W., from Galveston to Courtney, Texas.
Mincey, J. N., from Van Alstyne to Howe, Texas.
O'Brien, M. C., from New York City to Lewiston, Me.
Paquin, P., from St. Louis to Asheville Sanitarium, Asheville, N. C.
Ransom, C. C., from New York City to Richfield Springs, N. Y.
Snow, B. G., from Ann Arbor to Caldwell, Mich.
Saltzgaber, W. R., from Van Wert, Ohio, to Knoxville, Tenn.
Tappan, J. C., from 507 B. St., S. E., to 65 R. St., N. W., Washington, D. C.
Thompson, J. R., from Richmond, Va., to Colley, N. C.
Weitz, J. A., from Detroit, Mich., to Montpelier, Ohio.